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FOR THE PROVINCE OF QUEBEC.

TWENTIETH VOLUME

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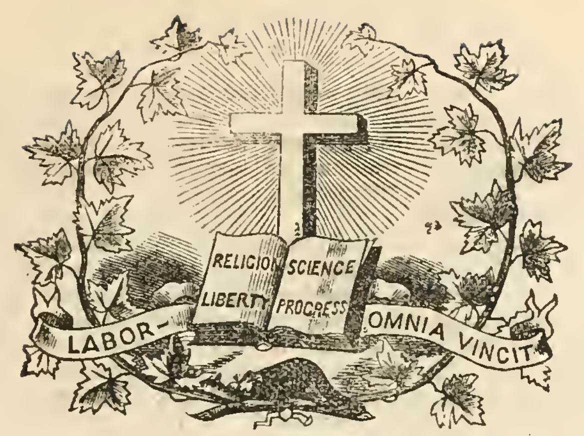
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Primary Instruction : Object-Teaching.

JAMES CRUIKSHANK, LL. D.

We do not choose this title, Object Teaching, from any fancy for it in itself, nor admiration for the crude and pedantic methods that are often put forth under its sanction, but because it stands for certain principles and methods in primary instruction, which have lately occupied a large share of public attention, especially among those accounted as leaders of educational opinion. If we use the term as synonymous with "the method of nature" in education, then it may prove worth the while to consider briefly : 1, What it is not, or rather in what respect the so called object-teaching is defective in principle or method ; and, 2, Some of the conditions of the true method of nature, that may improve our system of primary instruction.

As long ago as 1826, the little manual of Elizabeth Mayo, entitled "Lessons on Objects," was published in England. Near the same time, or not long after, American educators gave a large share of attention to the subject, and though there was little done, formally, in this country to organize the idea, yet its spirit was soon felt in improved methods, in a more rational apprehension of the end and the means of primary school training It was perhaps, rather a normal and healthful growth into the practical application of the objective in education, through the senses and the child's own endeavors, than any pretentious heralding of a new idea.

In England, Mayo's Lessons passed almost unchanged through a series of editions for nearly thirty years, until their revision in 1855, and were not largely entertained, except in a few of the schools for normal instruction, chiefly the Home and Colonial Training School. But in New York, and in nearly all our Northern States, the experiment inaugurated at Oswego, under the lead of Dr. Sheldon, was looked upon with favor, as containing the hope that the rank and file of the profession might have brought to their notice in organized form, and through a system of normal training and practice, what the more skillful had, by intuition or a keener insight, already accepted and practiced.

There can be little doubt that the Oswego Normal and Training School has given a grand impulse towards improved methods in primary instruction, and that even those who do not accept the methods practiced or the exposition of them in Mr Sheldon's edition of Miss Mayo's book, have yet had their attention, through these means, called to the consideration of fundamental principles, and have sought for improved methods.

The tendency on the part of the disciples of this school has been, undoubtedly, too largely to a somewhat slavish following of the standards ; yet there are notable exceptions, and the managers of that school and of others that have adopted its general ideas have, during the last decade, very generally modified the methods at first introduced by Miss Jones, of London (who was employed in the incipiency of the enterprise), as well as those set forth in the "Manual of Object-Lessons."

We do not find fault with the general principles enunciated so much as with the English adaptation of them As the crude feature of these last are sloughed off, the system improves, and much may yet be hoped from the careful study and practice of the many schools for normal instruction that are contributory towards an improved system of didactics

The foundations of the objective method of instruction were laid in the Baconian philosophy in the seventeenth century, and the utterances of nearly three hundred years ago sound much like the latest deliverances of our annual conventions of progressive educators.

"Men read in books," says Bacon, "what authors say concerning stones, plants, and animals, and the like, but to inspect these stones, plants, and animals with their own eyes is far enough from their thoughts; whereas we should fix the eyes of our mind upon things themselves, and thereby form a true conception of them."

Unquestionably the great founder of the inductive philosophy gave inspiration to the labors of Comenius, in the early part of the seventeenth century, who thus writes: "Since the beginning of knowledge must be with the senses, the beginning of teaching should be made by dealing with actual things. The object must be a real, useful thing, capable of making an impression upon the senses. It must be brought into communication with them: if visible, with the eyes; if audible, with the ears; if tangible, with the touch; if odorous, with the nose; if sapid, with the taste. First, the presentation of the thing itself and the real attention of it; then the oral explanation for the further elucidation of it." In the same strain wrote John Locke, in 1690: "When he can talk, it is time he should begin to learn to read. But as to this, give me leave here to inculcate again what is very apt to be forgotten, viz., that a great care is to be taken that it be never made as a business to him, nor he look on it as a task. We have an aversion for many things for no other reason but because they are enjoined us. I have always had a fancy that learning might be made a play and recreation to children, and that they might be brought to desire to be taught, if it were proposed to them as a thing of honor, credit, delight, and recreation, or as a reward for doing something else, or if they were never chid or corrected for the neglect of it."

Pestalozzi, who commenced his labors in the latter part of the eighteenth century and died in 1827, is indebted to Comenius for the fundamental ideas and, to a great degree, for the methods which he organized in primary education. And thousands of educators since Bacon's time, though, perhaps, not formulating their methods, have wrought in the spirit of these great leaders of educational progress; and we judge that many have been so true to nature, and so in sympathy with the little ones, to whom they were both teacher and companion, that they were as unconscious of the life and warmth that flowed from them as the sun is of his shining, or the dear mother earth of the plant that she nourishes into life and beauty and fruitfulness.

Chief among the defects that have attended the modern experience of object-teaching, which we shall simply refer to, without enlarging upon them, may be mentioned:

1. That too frequently it has been put forward pretentiously by those who, either from want of skill or with too narrow an apprehension of its true significance, have caught the form and missed the spirit—so that the dry bones of a dead formalism have taken the place of that living inspiration that should meet response in the active, aggressive, and inquiring mind of childhood.

2. Many, also, it is to be feared, who have little genius for the work of instruction, never translate into their own experience and vitalize the ideas—elementary and suggestive at best—which they have received from the manuals or the training schools.

3. The average American child, by methods of his own, in the daily experience of the home and the street, gains a knowledge of things that, in most respects, put him in advance of the school lessons, often manufactured as if the teacher or the book-maker supposed his mind to be still a blank; and so in this and other respects "Pestalozzian methods" have violated Pestalozzian principles.

4. Particularly, whilst it is accepted that "observation is the absolute basis of all knowledge; that the first object in education must be to lead the child to observe with accuracy; the second, to express with correctness the results of his observations"—yet too frequently (and the manuals encourage this) what he is to observe is predetermined by the teacher from her own consciousness, and not from the child's standpoint; and, in order that he may express with accuracy, he is entrapped into the repetition of scientific or difficult terms and seduced into the giving of a definition that, for any vital relation to the thing it stands for, might as well have been memorized at the first. We do not say that any intelligent teacher, who knows anything of the ways of children or has any sympathy with them, will long continue this: but this is the tendency, and a word of caution is needed.

5. The spirit of the maxim, "first form the mind and then furnish it," has been perverted and so interpreted as to give currency to a false philosophy, and to most erroneous and unfruitful practices. The mind is "formed" by the process of furnishing it; and it behooves all who have been led astray by this aphorism to consider that the real defect in our education is the meagerness of our knowledge of facts, more than of power to express what we know or to use what we have acquired.

There is a golden mean, and the "improved methods" are in danger, while contemning the errors of the "memoriter system," of going themselves to the other extreme.

"Gradgrind" may be amenable to censure, but he has received unmerited abuse.

The true use of Pestalozzian principles is to correct, not to overturn and destroy. It may be found that the evils which have been charged against the several schools of pedagogy arise from error in practice and false interpretation of principles, and that after all there are not so wide differences in the fundamental ideas as some have claimed.—(*Brooklyn Journal of Education.*)

Educational Backbone.

PROF. E. BARTON WOOD.

(Paper read before the Wisconsin State Teachers' Association, July 30, 1875.)

There is no grander thing in all the universe than a strong, decided, self-reliant, independent character. Strength of will, decision of purpose, independence of action and thought,—these form the lever that moves the world. Without these, all other traits are of little worth to their possessor or to the world about him. The weak man, no matter how good his purpose, is a cipher. He can not carry out his plans, nor can he inspire others with his feelings. He can neither resist temptation nor lead others away from it. The decided, strong man, and he only, can so act and impress himself upon his time as to effect any important thing for the race. We have plenty of weak, good men. We need more of those who dare stand up for their opinions, who in fact *have* opinions, and who can be swerved neither by threats nor cajolery from their true course—men, in other words, of backbone.

Backbone does not mean, as I understand it, unbending rigidity, or obstinacy, or pugnacity. Consider the structure of the literal backbone. It is strong, but it is also elastic; it may be rigid or it may be flexible; it has a wonderful power of adaptation to varying circumstances. Nothing can better symbolize the character of the men that are the need of the time. We want such men to come forth as the product of our public schools. To this end we need backbone in all things connected with education. They should be

vigorous, decided, with a definite purpose, calculated to beget in pupils a habit of independent thought adapted to their age, condition, and development, and so elastic as to serve the varying needs of the place and the time. We want backbone in our methods of teaching, in our discipline, in our courses of study, and in our whole educational system. These four points will be especially referred to in this paper.

First, as to methods of teaching. These are sometimes too rigid, cast in an iron mould, the same for all, young or old, mature or immature. Some teachers present every subject, even in a primary school, in a hard, dry, logical way, that has in it no variableness, neither shadow of turning. The recitation is simply an examination. No helping hand is offered, and if the pupil gets into deep water, he must help himself out. At a certain age and development of pupils, more or less of this work is needful to cultivate self-reliance ; but this is quite an advanced stage. The young and immature become discouraged and faint under it. The child, in its first feeble, tottering steps, must have an arm on which he can rely for aid.

But this method is becoming old-fashioned, and others, more modern, are more popular. There is the co-operative style, as it has been called, at the other extreme, in which the pupil is not trained to depend upon himself at all. He is called, arises, hesitates, and the teacher immediately goes through the work, the pupil looks on admiringly, nods approval, and is marked 10. Or else, when he hesitates, a dozen hands go up in class, and one gives a few words, another a few more, and so on ; and if he approves he is marked 10, as before. It is really astonishing to look at the class reports of such teachers, and to see how many of their pupils have stood 10 throughout the year ; and it is quite as astonishing to see how many of these fail in their examinations. The failure is explained as being the result of bashfulness or nervousness when examined ; but it really is because there has been no backbone in their instruction. They have been nursed and propped up with pillows until their strength is gone : and so, when left to themselves, they show how flabby and nerveless and characterless their teaching has been.

Then there are teachers who have adopted what they dignify by the name of *topical* method. What they mean by the topical method is too frequently the mere repeating verbatim by the pupil of the words of the text book, without questions on the part of the teacher. Truly. this is an improved method. It enables the teacher to get on without preparation on his own account ; for all he has to do is to look at his book, touch a spring and set some child a going, and then let him run down. A baser slander was never uttered than when such work is called the topical method.

Then there are those who wish to train the reasoning faculties of the child. The pupil, no matter how young, must never learn a new process or a new fact until he can give the philosophy of what he has already learned. He must not learn that $2 \times 3 = 6$ until he can tell the reason why $2 \times 2 = 4$. If these teachers could help it, they would not allow a babe to learn to talk any faster than it could give the rules of syntax. These teachers are usually very fond of "mental arithmetic" for the primary pupils, because they can require a logical analysis for each step. I say nothing against mental arithmetic, if its work is given to the grade of children fitted for it ; but in the way it is frequently taught I do decidedly object to it. A certain form of analysis is usually given in the text book for each kind of example. The child, no matter what his age or development, must learn the formula. Of course, with young pupils it unavoidably becomes nothing more than a formula—mere mechanical routine. No powers of reasoning are developed by such a process. It is a purely memoriter operation. Permit me to give a specimen out of hundreds of similar cases that I have observed :

Teacher : "Seven times eight is one half of how many times four ?" Pupil (after repeating the question) : "Seven times eight is fifty-six, and is one half of one hundred and twelve, and one hundred and twelve is twenty-eight times four. Therefore," etc. Teacher : "No ; next." I ask the teacher if that was not right. She says that the answer was right, but that the pupil did not give the correct analysis. "But" I ask, "was not the analysis he gave a logical one ?" "Well," she says," "I mark it a failure if it is not as the book gives it." She shows me the book, which gives this form viz : "Seven times eight in one-half of as many times four as four is contained times in two times the product of seven times eight," etc.

Can there be any surer way to blunt and deaden all that is keen and bright about a boy than that ?—any more certain method of crushing out every attempt at original and independent thought ? It "out-Herods Herod." It is a veritable slaughter of the innocents.

Any of these methods destroy self-reliance, and substitute a servile dependence on the teacher or the text-book. Not that either teacher or text-book should be abandoned, by any means. We have heard men crying out, of late years, "Away with your text-books ! No true teacher will use a text-book." But there is a proper use of text-books. They should be studied diligently, and the teacher should show his pupils how to study them. There is great mental discipline in such study. And after leaving school, the greater part of acquired knowledge must come through the medium of books ; and if one has not been trained to their use, he can not tread the avenues of thought beaten by other and greater minds before him. But all should be so done as to cultivate to the utmost the child's independence of thought and investigation.

Secondly, as to discipline. Here, too, we find the same extremes. One teacher rules by a law as inflexible as those of the Medes and Persians. He makes no allowance for difference of age or sex or temperament or home training. The single article of his creed is that discipline must be maintained. He has no smiles, no relaxation, no cordial greetings for his pupils, lest his authority may suffer. In his eyes a mistake is criminal, a laugh is flat treason. No sound disturbs the solemnity of that awful place. His school is orderly ; but so is a penitentiary. Everything is silent, but it is the silence of the grave. It is all, as Mr. Mantalini would say, "one demd horrid grind." His pupils may fear him, but they hate him. He has no art nor device by which to catch their sympathy, arouse their enthusiasm, inspire them with grand and noble purposes. He fails entirely of the highest prerogative of the true teacher—that of stamping his own impress and seal upon his pupils for all time. He sends them forth at last abject, spiritless creatures, or, if they have any rebound, disposed to transgress and defy any law, human or divine, except when restrained by fear.

This kind of school discipline, too, like the rigid method of teaching, is passing away. With the more modern teacher all is love. He loves all his pupils, from the frowzy six-year-old boy to the big girls on the back seats. He gushes, he runs over with love. He sets up no absolute standard of right, in any case, to which the ill-disposed and unruly must come. He desires to succeed, and his effort is to govern his school,

provided he can do it by love; if he can not, he lovingly submits to have the school govern him. Out upon such sickly, wishy washy, sentimental nonsense. That teacher is weak who desires any love from pupils not founded upon sincere respect for him as a man and a scholar, and a fearless executive of just and needful regulations. No true boy of spirit will feel anything but pity or contempt for such an invertebrate teacher as I have described.

There is no need of either of these extremes in government. The teacher can be just, without being morose; fearless in doing his duty, and yet kind and genial: strict in requiring obedience, and yet swift to do pleasant things for those under his charge.

Thirdly, with respect to courses of study. Not every school in a small town should copy the course adopted at Chicago or Boston, but should arrange it so as to be of the greatest advantage to the majority of the pupils who attend. And yet a good, thorough course should be adopted, not omitting some studies for general culture. And when a course is once adopted, no amount of influence should be permitted to cause teachers and school boards to graduate a pupil unless that pupil has studied and passed a thorough examination in every study laid down in that course. The very common practice of allowing pupils to pass grade who do not meet the demands of the class to which they are going—to thus slide along through the course, and go out at last with the certificate of graduation, is a most bare-faced fraud upon the public and the pupils themselves. It is an old saying that "human nature is as lazy as it can be under the circumstances"; and if pupils come to believe that they can "pass" without effort, and that even if they do not quite come up to the requirements, they will be allowed to slip through, they will almost universally become idle and superficial; and these habits, once formed, will cling to them through life. There is often much pressure brought to bear upon a teacher or examiner in many ways to permit this, and it needs backbone to resist it. Still, it is not always necessary to keep a pupil going over a study year after year, for which he has no taste or apparent capacity. If general history be in the course, for instance, and a pupil, bright perhaps in other things, does not seem able to master this, he may, after one or two trials, be permitted to drop it. But he should not be permitted to graduate, and thus have a certificate that he *has* mastered every study in the course. This common practice lowers the tone and reputation of the school and of its graduates, and is one of the chief reasons why people at large care so little about the diploma of a school as a certificate of scholarship. It is by no means necessary that a pupil should receive a diploma, but it is essential that he receive good, thorough instruction, should be well grounded in the elementary branches, should have good habits of study fixed upon him, should learn how to do honest, earnest, hard work in whatever station of life he may be.

Lastly, with regard to our general systems of education. I believe thoroughly in a state system of instruction, that shall be a living, vertebrate thing, with vital connection in every part, from the university down to the district school, controlled by the same will, informed by the same great purpose. It must not be so rigid as to shut out the majority of the children of the state from its benefits, nor so loose as not to present an opportunity for thorough instruction to those who desire it. It must yield to no demands of sect or party, and should be, as far as possible, removed from the domain of politics.—*Michigan Teacher.*

Government and Discipline.

SUPT. N. A. CALKINS.

In all the rules and methods of discipline employed, the true object of discipline should steadily be kept in view namely, to train the pupils so that they may form right habits.

Firmness, vigilance, and uniformity in dealing with children, are of the first importance. The teacher should never resort to violent means, as pushing, pulling, or shaking the children, in order to obtain their attention. All such practices constitute a kind of corporal punishment which, whether that species of coercion be permitted or not, should be most carefully avoided.

Modes of punishment especially painful to the corporeal system, such as the sustaining of wearisome burdens, unnatural and long continued attitudes of restraint, standing, kneeling, etc., are exceedingly wrongful and injurious. Equally so is the confining of delinquents by tying them or by shutting them in closets. These are all a resort to mere physical force instead of moral incentives, and involve no appeal to a sense of honor or duty in a child. They do not properly assert the authority of the teacher, nor do they really produce obedience on the part of the pupil.

When corporal punishment is resorted to, it should be of a proper character—never partaking of that continuous infliction of pain which we denominate torture, and never administered except in a spirit of mildness, and with deep regret at its necessity. When all those persuasive incentives and agencies which constitute moral suasion have been appealed to without avail, and there is no other recourse, corporal punishment may be resorted to in order to save the pupil, but for no other reason. The necessities of discipline may seem to require it, and they certainly do, if in order to meet them the teacher must choose between chastising his pupil thus or depriving him of the benefits of school instruction and training, and so insuring his moral destruction.

In directing the various movement required of the pupils, care should be taken never to touch them. The teacher ought to take such a position before the class as will command the eye of every pupil, and thence direct by the voice or by a signal. Pupils must be habituated to the impression that the teacher will give his commands but once, and that they must be obeyed at once.

Harsh tones of the voice are unnecessary and improper. Words of disapprobation may be uttered by the teacher in a tone of decision, without the use of any severity that would imply resentment, anger, or antipathy on the part of the teacher. On the contrary, the language used and the tones of the voice should always express a feeling of sympathy with the child. This is the way to win the youthful mind, and to bend the will, through the affections. A different course will antagonize it and prevent all real submission, securing only a temporary semblance of obedience.

"As the teacher, so will be the school." It is, therefore, requisite that teachers should rigidly discipline themselves, by carefully cultivating habits of neatness, cleanliness and order, gentleness of manner, a watchful self-control, and a cheerful spirit. In speaking, let the rising inflection of the voice prevail; then the falling inflection of reproof will be more effectual and impressive.

Teachers should seek to obtain the sympathetic regard of the children by giving due attention to their little wants and requests, which should be fulfilled as far as

may be proper and reasonable. Children are quick to perceive and recent injury or injustice. The child who asks for the privilege of a drink of water, for instance, may be suffering acutely; and if not accorded relief, when this seems to be perfectly practicable on the part of the teacher feels a sense of outrage which for a time, if not permanently, impairs its respect and regard for the teacher. The cultivation of a due feeling of sympathy for the children will wholly prevent this. The possession of this feeling in its fullness is the best foundation for success in both discipline and instruction.

Encouragement inspires confidence; and children, more than others, need it. Let it be given, in all cases where this can be honestly done. To a want of this in the discipline of classes are to be ascribed the timidity and reserve so often manifested among pupils by a hesitating manner, a low voice, and a tone of inquiry in response, especially to strangers. A proper degree of encouragement renders them confident and spirited, eager to tell what they know and in an audible tone of voice. Encouragement has a peculiar influence in promoting both mental and moral improvement.

Public exposures and badges of disgrace belong to a class of punishments which, if ever resorted to, should be employed under careful limitation, and with great circumspection and prudence; for it requires a skillful, discreet, and conscientious teacher to use them safely and with benefit. In the discipline of girls, they should be avoided altogether, as destructive of that nice sense of shame and delicate sensibility to reputation which are to be most carefully fostered in the female character.

Cleanliness, method, and regularity are among the first and most necessary elements of popular education. Every rule requisite to maintain or impart these should be punctiliously and diligently enforced.

Education is unfinished until the physical powers come under subjection to the understanding and the dictates of morality and social refinement. Children should be taught how to sit, to stand, to move, to walk. Rules are required for this; but they need to be only few and simple, and the nice and watchful observation of children renders it quite easy to enforce them, provided they are not capriciously applied Children must first be taught them, and then never permitted to violate them without admonition or correction.

Teachers should never forget that their pupils are closely and constantly watching their conduct, and that they are prone to imitate whatever they observe. They should, therefore, see nothing that they may not safely imitate. There is an "unconscious tuition," the silent influence of which produces the most permanent effects.

The character of children is greatly affected by their surroundings. These should, therefore, be neat and orderly. The rooms in which they assemble should be clean, the desks and other furniture, so far as possible, without injury or defacement, and everything given evidence of punctilious and constant attention. Children, from the contemplation of these things, unconsciously acquire habits of order, neatness, and regularity, which have important bearing upon their usefulness and happiness in after life.

The basis of good order is attention. It does not require that the pupils should occupy, for any certain time, a fixed position; that they should be compelled to restrain their glances upon a given point; that they should be motionless as statues. All this is unnatural; and whatever is unnatural is disorderly. The postures should be graceful, easy, and uniform, but should be frequently changed. The movements, while as simultaneous as perfect attention would necessarily produce, should also be easy and natural.

Good order involves impression rather than repression; it does not consist in a coercion from which result merely silence and a vacant gaze of painful restraint; but it results from the steady action of awakened and interested intellect—the kindling of an earnest purpose and an ambition to excel. Hence by making punishment the first instead of the last resort, the true object of educational discipline is defeated. The prevailing atmosphere of the class-room should be always that of love and kindness, equal to that of a parent, in whose place indeed the teacher is for the time; and it will be found almost invariably that everything essential to effective discipline springs from an interchange of confidence and regard between teachers and the pupils committed to their instruction.

Those who have the management and instruction of our schools should exercise the greatest care that their teachings and influence be not exclusively intellectual, that they tend not only to inform the mind, but to form the character,—filling the head, but impressing likewise the heart. Even where the operations of these schools are confined to teaching, let the kind of knowledge and the mode of imparting it be dictated by considerations having in view moral and religious, as well as intellectual improvement. Let the knowledge imparted be always such as will refine, ennoble, elevate. —(*From How to Treach.*)

* * * * * *

A Plea for the Children.

E. R.

I fear that as teachers we chide too severely and punish too hastily, forgetting that consideration is due to all. Though young in years, children have their rights, and those rtghts should be respected in every case. In childhood and within the school-room, to a certain extent, the deepest most enduring impressions are made upon the mind. There are lessons of wisdom not taught in our most complicated textbooks, but by words and actions as teachers. We open a book which the child is ever studying. Our example most of all is teaching the child: and by our careless, unjust words we may undo the toil of weeks. It is cruel to little, tender hearts to speak in a scolding, fault-finding manner: and by this very lack of forbearance on our part we too often defeat our object. If we would teach children self government, we must practice what we teach, unless we argue like an eminent theologian: "It is enough for me to preach: others can practice." Children are no more mischievous or depraved than they were in our childhood. I have a not very distant recollection of the misdemeanor of a certain fractious, nervous, irritated pupil who would be puzzled indeed were she called to deal with the same wayward, impulsive nature she herself manifested: and she well knows she would be called upon to practice more patience than ever the old patriarch spoke of in the Book of Books. We should shrink from the ordeal of being dragged before the public in such a way that every word and deed would be criticized by the pompous and self-reliant critics. It is still more trying to those susceptible natures entrusted to our care. It is to them sometimes like drawn daggers, robbing life of confidence, honor, and integrity, while the bruised, crushed flower of hope folds its tiny leaves, trembling, and firmly saying, "I have done the best I could, and my efforts have been spurned, my attempts to do better slighted. It is useless for me to try longer to do right." Thus,

knowing itself to be a target upon which some irritable teacher vents his spleen, the good that might shine forth from that soul like some bright star is quenched forever; and surely does the life pass out of that heart as breath passes from the frail tenement that humanity inhabits. It droops, pines, and dies in silence, for want of one kind, encouraging word.

Fault-finding and over-severe critisism have been the bane of many a life, crippling its energies, warping its impulses, cutting off its most innocent amusements and pleasures, and forever withering its hopes. As teachers we can not be too careful or deal too gently with our pupils, though they commit many errors; for perhaps so far they have trodden the wine-press alone, and wearily wrung out their joy and sweetness drop by drop, with injudicious hands to guide them. We too have our failings, and barter in some careless moment the real for a fancied good. All lives are like leaves thrown upon the ocean: some by a lucky and favorable tide are cast upon a friendly rock, others are swamped in the mire of adverse surroundings. Then should it not be our duty and mission to aid those cast into the mire till they too reach some rock of safety, and do all we can to fit them to adorn any station in life which they may be called to fill. In order to accomplish this, we must always appreciate the efforts of the dullest and stubbornest pupils. Human nature is not very charitable, and does not give children the credit due them. We can find nothing in this great, revolving universe that is created for naught—not even the tiniest leaf or flower. Is it, then, to be supposed that one soul, possessing all the attributes with which the Creator has endowed it, should be incapable of being aroused to life and action? Aye, if patience has its perfect work, a fairer, purer life shall shine upon that soul, and we will forget the once-frail reed.

Despise none, despair of none; for there are blossoms of hope in every bosom, and with keen perceptions and untiring perseverance every child's better nature can be reached. Nor should we become disheartened; for the moment we become discouraged we lose to a certain extent our influence over the child, and should his improvement be slow, perhaps scarcely perceptible to our eye, yet we may remember the old proverb, "The race is not always to the swift, nor the battle to the strong." Although a teacher should be thorough in government as well as in methods of teaching, still gentleness can be combined with firmness, never exacting of the child what he could not accomplish himself under the same circumstances, with the same ability and disposition. Should he travel the length and breadth of the land, he could find no two persons who are controlled alike. Hence it is the duty of the teacher to study child-nature as well as mathematics, grammar, or geography, and then adapt his method of instruction accordingly, ever encouraging a spirit of intelligence, love, patience, honor and truthfulness, and warning them of bad habits incidental to life. Bads habits are the thistles of the heart; and from each indulgence of them will spring a new crop. He should never make a child a promise unless he looks into all the circumstances of the case, and has every reason to believe he can fulfil the promise.

I see the abuse, but not the use, of the rod. I think the time for corporal punishment has died, and only waits for a decent burial. Certainly, a small child should not be punished in that way; and if a pupil of more mature years would not obey without such treatment, I doubt whether he would obey with it, save through fear; and is government through fear the exact thing wanted in our schools? No scholar is ever brought to a sense of sorrow by angry words or blows, or by bitter, scornful reproaches. He fortifies himself against such treatment; and if he does not hurl back taunting, wicked words to his accuser, those wicked, resentful feelings are in his breast just the same. The teacher must reach his better nature. Pity and patience are the best keys to the human heart; and they are most successful who are most forbearing.—*Michigan Teacher.*

On Higher Education.

Extracts from a paper read by Prof. Ashley before the "Olio" literary club of Springfield, Mo., in which he defends the present prominent position of Greek and Latin classics in collegiate education:

"The study of Greek and Latin affords the best and most rational means of exercising the faculties in the order of their development. The mental powers are not simultaneously developed, but follow a regular order of growth. In the child, perception, memory and imagination are first developed, and with these a wonderful aptness for the acquisition of language. Later come the rational faculties, and with their development the earlier powers seem to lose much of their acuteness. Now Greek and Latin afford just the elements needed for this earlier stage of the mind's growth, and at the same time, for the natural and thorough development of the rational faculties.

The race and the individual follow the same order of growth, and language keeps pace with the minds of those who use it.

The classic tongues are the languages of two of the most powerful families of the Aryan race. They represent the synthetic period of language in its full power and beauty. The syntactical connection of words and the modification of the mental images which they represent are indicated to the eye by changes in form, thus affording a schedule of object lessons adapted in the best sense to develop the perceptive powers. In acquiring a vocabulary memory is developed and strengthened, while translation gives a power of expression, a subtlety of analysis, and a habit of keen discrimination, to be gained by the same time and effort in no other way.

Again, a classical education is the most practical education.

In making the assertion, we contend that the primary object of an education is to develop the mind, not to fill it with facts; to give discipline, not knowledge; to impart power, to think, not to furnish material for thought. The opinion has been expressed by several noted philosophers that any ordinary student may, under competent teachers, acquire all that Newton or LaPlace knew in two years; but to acquire their regal power of intellect was a different thing. This only comes as the fruit of a habit of long continued and intense thought such as is best acquired in a prolonged and critical study of the most faultless models of thought and speech. It is the young man who has the greatest power to know, not the one who has acquired the most knowledge, that will be the winner in life's fierce competition.

"But," says one, "why not gain your discipline in studying practical things?" We will answer by asking whether the study of history, rhetoric, political science, jurisprudence, and ethics are practical studies. When we study Herodotus and Livy we are studying the greatest historians. There are no text-books on rhetoric to equal Horace and Quintilian; none on political science or jurisprudence better than Cicero and

Demosthenes; none on ethics purer and more persuasive than Socrates, Cicero and Plato.

There is no argument more fallacious than the one urged against the classics of want of practicality.

Prof. Cooke of Harvard University in his last address on "Scientific Culture" makes this remarkable concession: "After having spent a quarter of a century in assiduous labor to establish the present methods of science teaching, I am far from believing that they are the only true modes of obtaining a liberal education. So far from this, if it were necessary to choose one of two systems, I should favor the classical." After giving good reasons for this, he says further: "I never had any taste myself for classical studies, but I know that I owe to the study a great part of the mental culture which has enabled me to do the work which has fallen to my share in life." Multitudes of instances might be cited in proof of this position, but we shall pass this point with a single undeniable assertion that a large majority of men who form all the works of life, and all the professions, have done the most to ennoble, dignify, and develop English and American scholarship in all departments of literature, science and art, have been and are classical scholars.—*American Journal of Education.*

DRURY COLLEGE.

Drawing in the Public Schools.

BY HELEN L. D. POTTER.

Like mathematics, drawing is generic and not a specific term. If I say I am studying mathematics, you really know but little of what I am actually studying. It may be arithmetic or algebra or geometry or trigonometry or calculus or some special application of mathematics, as in astronomy or navigation; so it is with drawing, for drawing is also divided into departments and you may be wholly absorbed in one of these departments without the slightest regard to any other department.

I say this because an idea seems to be prevalent that drawing is an accomplishment only and if a child draws, he must necessarily make what we understand to be *pictures.* The art of picture making is only one and the least useful one perhaps of all kinds of drawing.

No one can form a thoroughly intelligent opinion of the educational and practical value of drawing until he knows exactly what is meant by drawing. It is best therefore to give a short account of the five departments of Drawing.

I. *Linear, or outline drawings, from flat copies, and designing. Free-hand.*

This department is based on plane geometry, dealing with two dimensions only, length and breadth. The patterns for all flat surfaces come under this division of drawing; viz., carpets, laces, print, wall-paper, table-linen, etc. The learner begins by sight lessons, motion-exercices, and by drawing lines and plane geometrical forms, as triangles, rectangles, etc. Then follow geometrical patterns or designs, that is, designs not made in imitation of natural forms; next come conventional designs, that is, designs derived from natural forms, but not imitating them exactly; some other work is added to this course, of which we will speak by and by.

The copies should be as beautiful as possible, for the purpose of developing the pupil's taste. They should be enlarged and diminished as well as exactly copied in size, in order to teach form distinct from size, and so that pupils may learn to judge of the proportion of figures by use of the eye alone. In this way the pupil obtains what is often "correct judgment of eye." He learns to see the difference between a square and an oblong by their proportions, and also to recognize a triangle, however small or great it may be.

In this department the pupil also begins to draw from memory; again from dictation, that is, from verbal description only, which enables him to translate words into visible forms—a power of great value to every artisan. Finally he is exercised in making original designs; this develops the inventive powers, and shows whether the learner has acquired knowledge and taste as well as dexterity in the use of the pencil.

Ideas are of more importance than skill of hand. Give a pupil knowledge of symmetry, of historic forms of beauty, etc., and there is a prospect that he may make use of this knowledge some day; but skill of hand without knowledge, is fruitless; at best it can only feebly copy the work of others. Next in importance is rapidity of work; those lines are most beautiful which are made at one stroke or revolution of the pencil, and a hesitation at any point will cause it to look patched or spiritless as a whole. So pupils at the outset must *do* what is to be done at once, whether it proves good or bad. Skill will follow, and pupils so taught will undoubtedly produce work of far greater spirit and become swifter artisans than those who drag along and hesitate in their work. Draw first with understanding, each line having a meaning or purpose; next draw what you draw without hesitation, swiftly; then fear not but that fine finish will follow in due time.

We should never confine a pupil to one line or one figure until it is perfect; any more than we would make him produce a perfect letter in script before he is permitted to begin another. Every one allows him to write poorly at first, expecting him to correct and perfect his work by varying the combination of letters day by day. All this work, except the designing, is done free-hand. Original design is intended to display the originality, knowledge, and taste of pupils, and not to test their power to overcome difficulties; hence pupils should be allowed to bring out their ideas, to express their thoughts by any means possible, whether mechanical or free-hand.

II. *Drawing problems in plane geometry with practical application. Instrumental*

The drawings in this department represent two dimensions, length and breadth; so far they resemble the drawings in the first department. Some of the drawings are indeed the same, being geometrical forms in plane geometry; but they will were done free-hand before, here they are executed with instruments, and are valuable only in utmost accuracy and precision. An instrumental drwing to be good must be absolutely perfect. The construction of the higher plane curves which do not close like the cycloid, the epicycloid, the parobola, is included in this department. Then practical applications follow, to show the use of the knowledge acquired in the drawing of geometrical problems.

The drawings are made with a pair of compasses and a square. Of all the departments of drawing this is the easiest to learn. The work is delightful, and even young pupils will acquire considerable skill in the use of instruments. In this work the difficulty of executing with precision increases as the size of the drawing decreases. The great value of this department of drawing is in the fact that the figures and curves here taught are employed by all kind of artisans, machinists,

carpenters, masons, shipbuilders, bridge-builders, etc., etc. Even decorative designers have constant occasion to make use of the problems of plane geometry, since nearly all ornament is based upon a geometrical construction. These drawings are usually made from a suitable text, and are a wonderful discipline in the precise use of language, and in the interpretation of the printed page, wherever found in after-life. All other studies feel the good influence of this. Of course these problems are not demonstrated geometrically by young pupils, the *facts* here come before the reasoning. The pupil may know how to divide an angle into two or three equal parts, and yet not be able to give a reason for each step; nor is it necessary for him to know the reason.

III. *Model- and object-drawing. Free hand or popular perspective.*

This department deals with three dimensions—length, breadth, and thickness. Geometrical solids, like the cone, the cylinder, the cube, etc., receive the first attention; then come objects manufactured or natural, whose general shapes are decidedly geometrical, as a goblet, a funnel, a beet, or a morning-glory.

No light and shade can enter into a drawing which has only two dimensions, but here shade may be added to make the drawings more realistic. But no shade should here be allowed until pupils can draw accurately in outline, for no amount of shading can compensate for defects in the rendering of the pure form of an object. In this department it is best to begin with flat copies, then follow solid models, then natural forms: *e. g.*, the pupil draws a cone from a copy, then from a solid cone, then from some natural object cone-shaped, as the turnip or radish.

In this department of drawing notice must be given to three things: 1. To the effect of distance on objects; 2. To the convergence of retreating parallel lines; 3. To foreshortening. These are easily applied in practice.

We all know that the further an object is from us the smaller it appears, and we know the law of convergence. Any one who has looked down an avenue of trees remembers how the two lines of trees seem to come together in the distance, and the road to narrow until it can not be seen at all. Look down a long room, and the retreating parallel lines seem to tend toward a point directly before the eye. The ceiling above seems to tend downward as it recedes, while the floor seems to ascend; the right wall tends to the left and the left wall to the right; and if continued far enough, they would all seem to meet at a point opposite the eye of the spectator. The foreshortening, or shortening of the fore or front view of any object, is also well understood. A circle turned from the eye becomes an ellipse. A cone may be seen at its full length, or be turned from the eye until only the head of it can be seen. This is not because of distance, as in perspective, but is simply foreshortening: the cone may be a foot or a rod distant, and the proportionate foreshortening may be shown all the same.

By practice in model-and-object-drawing one learns to represent what is seen, and also to "see in space," as it is technically termed. He learns to form a clear mental picture of those parts of an object which are invisible, and upon which the correct representation of the visible parts is dependent; also of objects which are described by others in words; and again, of objects which he wishes to make from his own conceptions. This power of realizing objects by an effort of the imagination is of great value not only to the artist, but to the artisan, as he is constantly called upon to exercise his mind in this way. Indeed every one has more or less need of this power.

This kind of drawing is called free-hand or popular perspective, because the drawings are executed without instruments, and because neither the size nor the distance of the object is given. You draw what you see, provided you can make out just what you do see. All vertical lines in the object must be drawn vertical; then upon the oblique line first drawn depends the position of all *other* oblique lines, observing the three things described above.

IV. *Exact or Mathematical Perspective. Instrumental.*

This department of drawing, like the preceding one, deals with three dimensions—length, breath and thickness. It is used by draughtsmen to show how the building or machine or other object will look when done, but is seldom necessary to the workman.

Perspective is an exact science, founded upon geometry and the laws of optics. The drawing is done with instruments in order to render the work exact—the same as geometrical drawing. Perspective means *seen through*. If you will stand before a window with a long-handled brush dipped in India ink, and will draw upon the glass the outline of the object seen through the glass, you will have a perspective outline-drawing of the scene before you.

You may ask how this drawing differs from model and object-drawing, since both deal with *three dimensions* and represent things as they *appear*. In replying it may be said that model- and object-drawing does not involve planes, exact dimensions, or distances, as the drawings are made free-hand by judgment of eye only, taking into account simply the general effect of distance and foreshortening, which has been alluded to under the head of "Model- and Object-drawing" in the subdivision of this subject numbered III.

In exact perspective we must recognize planes, the exact distances and dimension of objects, or we can have no exact drawing. We have the *vertical plane*, which is the plane upon which the picture is to be drawn (as represented by the window-glass or by paper supposed to be vertical while drawing upon it); we have the *ground-plane*, or plane upon which the spectator and object stand; then we must take into account the distance of the object beyond the picture-plane and that of the spectator in front of the picture-plane (*i. e.*, the distance from the eye of the spectator to the window-glass, and from the window-glass to the tree or object beyond) in order to obtain a correct drawing.

"Practically it is only straight lines that perspective can deal with. When other lines are introduced they can only be drawn with approximate precision, by the help of straight lines; hence three divisions are made of exact perspective—*parallel*, *angular*, and *oblique*, or accidental." These may be illustrated by the drawing of a cube. If the cube stands level (as on a table or floor) with its side parallel with the vertical or picture-plane (as if paralled with the window), it is called parallel perspective; if the cube stands level with its side turned from the picture-plane (as if on the floor with the corner toward the window), it is called angular perspective; if it does not stand level, and so has no side or edge parallel to the picture-plane, it is called oblique perspective (as if standing on one corner with all the sides oblique to the floor and picture-plane).

V. *Mechanical drawing. Instrumental.*

This department of drawing also deals with three dimensions, but not at all like perspective: for while

perspective represents things as they *appear*, mechanical drawing represents them as they *are*, making no allowance for optical illusions. Perspective is usually employed to represent things after they are made, and gives a picture; mechanical drawing represents things that are to be made. Its aim is construction, based on what is called orthographic projection. Here we have the drawing for a house: the groupp-plan, or plan of the first story, the plan of the second story, showing all the closets, partitions, proportions of rooms, thickness of walls, etc., in each story to the attic; then there are elevations showing the front, the back, and the ends of the house. In fact we have all the plans and elevations ond section-views necessary to the workman to construct the building; hence these are called working drawings. Working-drawings usually represent two intersecting planes—one horizontal and one vertical—both represented upon the same sheet of paper. The drawing on the horizontal plane, or that part of the paper representing it is called the plan, and that part of the drawing on the vertical plane, or upon that part of the paper representing it, is called the elevation. Mechanical drawing includes all drawing made for the building of ships, machines, bridges, architecture, etc.

The work in this department begins with the representation of geometric solids in different positions; then in sections, and then the development of surfaces; after this the principles learned are apdlied to different departments of industry to show their utility. To facilitate instruction flat copies provided in books or otherwise are found exceedingly useful; carefully-prepared text should accompany them. The flat copies, supplemented by models and objects lessen the demands upon the imagination.

Nearly every thing is now made from drawings; and as so many boys must become artisans, bridge-builders, carpenters, masons, shipbuilders, carriage-makers, etc., the public schools should certainly undertake to qualify them at least to "read" working-drawings, if the time devoted to school is inadequate to make professional draughtsmen.

VI. *General remarks.*

The study of drawing may be taken in successive departments, completing one before another is attempted: or it may be cyclical, that is, the departments rotated or alternated.

The latter is deemed better for rapid development in a given time. For example, the majority of pupils leave school before reaching the high-school, say at fourteen years of age; so to reach the mass of pupils the work must be done in the primary and grammar schools, or not at all. Some notion of various kinds of drawing should be at least explained and understood during this period. In order to do this, perfection in execution can hardly be attained in any department of the work. Do not hastily say this is all wrong; that a little perfectly done is better than a great deal half done; but think for a moment what the effect upon a class would be if the pupils were required to make a perfect letter *a* before they were allowed to attempt another letter in learning to write, or required to make an absolutely perfect circle, free-hand, before they were allowed to draw another line. Why, the wisest and most self-controlled adult would go insane at the attempt. And after all it is *ideas* we want rather than skill in young learners: for if the child has some idea as to what he wants to do, even though the fingers be unequal to execute the idea, you may be sure he will work it out some time; whereas if he has no ideas, he can work out nothing in the future. Let the work be ever so crude, if he has grasped the idea, the thought, then be satisfied execution will follow in good time.

It has been found better to alternate modes of working in the grammar-school course; *e. g.*, the free-hand with geometrical drawings, as each assists the other. Instrumental drawing by its perfect results tends to fix correct models in the mind of the pupil, so that he is better able to criticise and correct his free hand work; and the free-hand work is indispensable in departments, as curves which cannot be made with instruments must always be executed free-hand. These are found more or less frequently in all kinds of drawings, and constitute the true spirit of the highest decorative art.

A pupil might, of course, take only geometrical and mechanical drawing, and be a machine draughtsman; or drawing in perspective only, become a picture-maker; but it can not be denied that he would do much better if he knew something of all the various departments of drawing. In our public schools we can only lay the foundation. At present we can not hope to fully prepare pupils for special vocations: that work has to be done in special schools; at the same time it is our duty to so ground them in the principles of art and science that they may continue, without loss of time, to prepare for the vocation selected; able at least to comprehend what is to be done and how to go about doing it. We teach mathematics in our schools, but we do not apply this knowledge to its higher uses; we do not attempt to make civil engineers or astronomers. Just so in drawing, we do not expect to turn out full-fledged architects or draughtsmen or artists, but we do expect to lay such a foundation in art by teaching its laws and principles that the pupils may afterward easily turn to any department of art with a fair chance for success.

Then, again, it is better to draw continuously for three months, giving, we will say, three full hours a week to the subject, and then drop the work altogether for three months, than to work the whole six months one and a half hours a week. For by giving extra time and manifesting unusual interest in a study the pupils will grasp and fix permanently ideas and principles which in short lessons, far separated, might take no root at all.

For example, let the teacher take up free-hand drawing (from flat copies) and designing. Continue this course until the pupils have a clear notion of symmetry, of historic ornament, of conventionalism, etc.: then, having fully grasped these points and applied them to numberless drawings, drop the subject for a quarter; then take up freehand drawing and geometrical drawing for a quarter, working double time in the course of the week, *i. e.*, three hours. In this way the pupils are kept eager for the work; they grow strong and hearty in their devotion to their exercises.

This theory every practical teacher has illustrated in a greater or less degree. Have you not attempted to explain something to a child who failed to comprehend you, and have you not been forced to leave it for a time, it may be for a long time, and then have you not seen the face illuminate with the dawning comprehension of the principles involved?

Children who get tired of mathematics and can not understand one step further ought to be allowed to drop that study for weeks to let them grow; then taking up the subject they will find it like a clear brook, every pebble in plain view, no more trouble, no more dislike for mathematics for weeks again.

The primary course should embrace the drawing of lines, plane geometrical figures, and conventionalized plant-forms, with their applications in geometrical and conventional designs. Historic forms should be promi-

nent. Simple objects may be drawn, if so drawn as to show only two dimensions—length and breadth—perspective effects being omitted. The character of the instruction should be such as to exercise the pupils in enlargement and reduction, in memory and dictation drawing, and in the elements of original design. Much of the work may be profitably done on slates.

All that is begun in the primary course should be continued in the grammar course, with important additions. More attention should be given to historic ornament, and the pupils should acquire definite knowledge of leading decorative styles. The drawing of the problems of plane geometry should be carefully attended to. Model and object drawing, or free-hand perspective, should be taken up of an early period; also, before the close of the course, instrumental perspective. Very little or no attention should be given to light and shade in this course.

The drawing of historic ornament should be continued in the high-school course with the use of colourin flat tints. Botanical analysis and original conventional design for decorative purposes, in color, should receive marked attention. Indeed there should be much of original design as applied in various industries. Advanced work should be done in model-and object-drawing, with the addition of light and shade; and drawing from the cast should be begun. There should be advanced work in instrumental perspective, with the use of half-tint to emphasize the solidity of the objects. Much of the proper work of the high-school should be elective for the purpose of allowing a choice between architectural drawing, machine drawing, and the like, on the one hand, and purely æsthetic art on the other.

The courses which have been thus briefly described can not be adopted at once, where no previous systematic work has been done in drawing, for much that should be learned in the grammar-school must necessarily be taken up by the pupils in the high-school, since there can be no satisfactory progress without a knowledge of the rudiments. Under such circumstances the instruction must be at the outset provisional.

—*Home and School Journal.*

McGill University.—Christmas Examination.

PRIZE LIST.

ORDINARY COURSE IN ARTS.

Greek.—Third Year—Class I—Lafleur, Gould, Warriner, Newnham, Scott. Class II—Pedley (C. S.), Robertson, Amaron; Anderson and McGregor, equal; Forneret and McGibbon, equal. Class III—Atwater. Second Year—Class I—Ross (Donald), Ross (James), Donald. Class II—Thornton; McFadpen and McLaren, equal; Blakely, Dawson. Class III—Lyman, Guerin, McKillop; Sweeny and Torradee, equal; Ewing, Taylor. First Year—Dlass I—Eadie, McClure, Stevens, Morrison. Class II—Knowles; Cross, Lighthall and Robertson, equal; McConnell and Shearer, equal; McKibbin, McLean and Silcox, equal; Class III—Halley and Meighen, equal; Lane and Redpath, equal; Allen and Wood, equal; Culp, Houghton and Roy, equal.

Latin.—Third Year—Class I—Lafleur, Gould, Scott, Warriner, Newnham; Anderson and Pedley (C. S), equal. Class II—Forneret; Amaron and Robertson, equal; McGibbon, McGregor. Class III—Atwater, Chubb. Second Year—Class I—Ross (Donald), Ross (James), Donald. Class II—McFadyen, Blakely, Thornton; Guerin and Taylor, equal. Class III—Torrance, Sweeny; Dawson and McKillop, equal; Lyman, McLaren and Ewing, equal. First Year—Class I—Eadie and Stevens, equal; McClure, Morrison, Shearer. Class II—Knowles, Cross; McLean and Robertson, equal; McConnell; Meighen; Haley, Lane and Redpath, equal; Lighthall. Class III—McKibbin and Imrie, equal; Wood, Houghton, Roy, Culp; Rutledge and Allen, equal.

(*English and Rhetoric.*—Fourth Year—English Literature)—Class I—Duffy, Graham, Watson. Third Year.—Rhetoric)—Class I—Lafleur, Scott, Robertson, Gould. Class II—Atwater, Chubb. First Year—(English Grammar and Composition)—Class I—Morrison, Stevens, McClure, Lighthall, Cross, Eadie, Edmunds. Class II—Lane, Shearer, Robertson, Knowles McKibbin, Haley, Rutledge, Howard, Meighen, McLean, Redpath, Roy, Houghton, McConnell, Culp. Class III—Campbell, Wood, Allen.

Mental Philosophy.—Fourth Year—Class I—Rexford, Pedley (H.), Lyman (H. H.), McGoon, Watson. Class II—Cox, Hughes, Duffy, Langford, Kettlewell. Class III—Malcolm, Malcolm, Matheson, Gray, McCarroll.

Moral Philosophy.—Third Year—Class I—Pedley, (C. S), Warriner, Amaron, Lafleur and Scott, equal; Silcox. Class II—Anderson, McGregor; Gould and Newnham, equal; Barltrop and Forneret and Kettlewell, equal; Baugh. Class III—Meyers and McGibbon, equal; Robertson, Langford, Atwater, Edwards, Cunningham, Chubb, Hobbs.

Elementary Phsycology.—Second Year—Class I—Ross (James), Dawson, Ross (Donald), Donald, Blakley, Thornton, McFadyen, Lyman (C. A.). Class II—Kettlewell, Ewing, McKillop, Torrance, Guerin. Class III—Langford, Wright, McLaren, Evans. Willett, Wolcott, Sweeny.

Hebrew.—Senior Year—Class I—Pedley (C. S.) Class II—McGregor (A. F.), Boudreau. Class III—None. Junior Year—Class I McKillop, McClure; McKibben and Shearer, equal; Eadie, Silcox, Houghton; Ewing and Rivard, equal. Class II—Cruchet, Baillie. Class III—McLean.

Mathematical Physics—Four Year—Class I—None. Class II. Duffy. Class III—McGounn, Watson, Graham, Matheson, Gray, Cox, Pedley (H.) Third Year—Class I.—Newnham, Pedley (C. S.) Class II.—Lafleur. Class III.—Scott and Warriner, equal; Gould Forneret, Robertson (R.), Amaron.

Mathematics.—Second Year.—Class I.—Ross (J.), Blakely; Dawson (R, and Ross (D.), equal. Class II.—Thornton, Ewing. Class III.—McFadpen, Donald, Torrance (F.) Sweeny McLaren, Lyman (C), McKilloq, Guerin. First Year.—Class I.—Morrison, Knowles; McClure and Stevens, equal; Eadie. Class II.—Shearer, Cross Class III.—McConnell, Lightall, Meighen; Allen and Haley, equal; Cochrane and Edmunds, equal; Houghton and Redpath: equal; Wood; Culph and Howard (R. J. B.) and McLean and Roy, equal; Robertson (H.)

Experimental Physics—Fourth Year—Class I.—Lyman and Rexford, equal Class II.—None. Class III—Duffy, Watson. Third Year—Class I.—Lafleur. Class II.—Scott, Chubb. Class III.—Forneret and Gould and McGibbon, equal; Robertson (R.), Amaron.

Geology, (Mineralogy and Lithology).—Fourth Year—Class I—Lpman, Crothers. Class II—Pedley, Watson, Matheson, Cox, Gray, Cossar. Class III.—Malcolm, Hughes.

Zoology—Third Year.—Class I—Scott, Warriner, Pedley Newnham, Forneret, Foord, McGregor.—Class II.—Atwater Anderson Class III—Chubb, Livingston.

Botany.—Sesond Year—Class I—Donald, Dawson, Ross (J), Ross (D), Lyman, McFadyen, Thornton, Ewing, Blakeley, Kettlewewell Class II.—Adams, Guerin, Torrance, Langford, Barltrop, McLaren, McLaren, McKillop. Class III—Sweeny, Livingston, Baillie.

Chemistry.—First Year—Class I—Shearer, McBlure, Eadie, Morrison; Meighen and Stevens, equal. Class II—Cochrane, McConnell; Knowles and Robertson, equal. Class III—McKibbin, Cross, Howard (R.); Caverhill and Lighthall, equal; Allen, Anderson, Rutledge, Haley, Redpath, McLean, Edmunds, Wood

French.—Fourth Year—Class I—McGoun. Class II—None. Class III—None. Third Year—Class I—None. Class II—None. Class III—Robertson, Chubb. Second Year—Class I—Ross James; Ross (D. C.), Guerin, Donald. Class II—Blakeley, (Dawson. Class III—Thorton and Torrance equal; McLaren Sweeney, McKillop, Lyman, Evans. First Year—Class I—McClure, Lame; Cross and Redpath and Wood equal; Lighthall, Howard, Cochrane, Eadie. Class II—Allen, Edmunds, McConnell. Class III—Knowles; Campbell and Morrison equal; Robertson, Haley, Meyers, Stevens, Meighen.

German.—Third Year—Class I—Gould. Second Year—Class I—Ross (James). Class II Year—Class I—Lane, Cross. Class II—None. Class III—McLaren (D. C.) First Year—Class—Lane, Cross. Class II—Edmunds. Class III—Lighthall, Roy, Caverhill.

DEPARTMENT OF PRACTICAL AND APPLIED SCIENCE.

Engineering.—Special subjects. Senior Year—Class I—Chipman. Class II—Hawley, Hetherington Class III—None. Middle Year—Class I—Sproule, Ross, (P.) Nelson. Class II—Jones;—Thompson and Walbank, equal. Class III—Rogers. Junior Year. Class I—O'Dwyer, Hall. C'ass II—Swan, Adams, Hull. Class III—Scriver, Perry, Power.

Use of the Blowpipe and Assaying.—Middle Year. Class I—None. Class III—Howard (W.).

*Mathematical Physics.*Senior Year. Class I—Chipman. Class II—None. Class III—Hetherington Middle Year. Class I—Sproule. Class II—None. Class III—Thompson, Ross (P.), Jones, Rogers, Walbank, Wardrop.

Mathematics.—Middle Year, Class I—Jones, Ross (P.), Sproule. Class II—Wardrop. Class III—Rogers, Thompson, Walbank. Junior Year. Class I—O'Dyer and Swan, equal. Class II—None. Class III—Adams; Hull and Scriver, equal;—Hall and Perry, equal;—Ferguson.

Experimental Physics.—Senior Year Class I—Chipman. Class II—Hethrington. Class III None. Middle Year—Class I—Sproule Class II—Ross (P. D.). Class III—Wardrop, Jones, Rogers, Nelson, Thompson.

Geology, (Mineralogy and Lithology).—Senior Year—Class I—Chipman. Class II—Hawley' Hethrington.

Zoology and Palæontology.—Middle Year—Class I—Sproule, Nelson, Ross (P). Class II—Walbank, McNie, Jones, Howard, Thompson, Rogers. Class III—Casswell, Clements, Wardrop.

Chemistry.—Junior Year, and Middle Year in Part—Class I—Adams, O'Dwyer. Class II—Swan, Wardrop, Howard, (W.). Jones, Hall. Class III—Scriver, Hull, Walbank, Thompson, Perry, Ross (P)

English.—Junior Year—(Grammar and Composition)—Class I—None. Class II—O'Dwyer, Scriver, Adams, Swan, Cochrane, Hull, Hall. Class III—Perry, Smith, Ferguson.

French.—Senior Year—Class I—None Class II—Chipman. Class III—Hawley. Middle Year—Class I—None. Class II—Sproule, Jones, Walbank. Class III—Koss, (Ph.). Thompson, Clements. Junior Year - Class I—O'Dwyer, Swan. Class II—Smith, Perry, Hall. Class III—Adams; Morkill and Scriver, equal; Ferguson.—*Montreal Gazette.*

POETRY.

Night Ride in Fairyland.

All night the great elms shook for fear
  And writhed as if in pain,
Between the pauses of my sleep
  I heard the gusty rain;
Quite sick of this world and unmanned,
I road away to Fairyland.

All night the bellowing of the storm
  The crazy chimney rocked and shook;
Till, weary of this sound and woe,
  Weary of pen and ink and book,
I bridle snatched with careless hand
And rode an hour through Fairyland

I heard still as I flew along,
  The old oak's branches shake and shake,
Yet weary of this stubborn heart,
  That throbs and throbs, but will not break.
I sought for Oberon and his band,
And rode long leagues through Fairyland.

I found the court; in love and dance
  I whiled away the summer hours;
Lances I broke, and quaffed the cup,
  Where fell a rain of crimson flowers.
They all obeyed my proud command.
Those little folks of Fairyland.

I won the fairy crown at last,
  And built a castle tall and proud;
The roof was sunshine, and the walls
  Were form of rainbow and of cloud;
I bade the goblins own my sway—
A shout—I woke, and it was day.

All the Year Round.

THE JOURNAL OF EDUCATION

QUEBEC, JANUARY, 1876.

We published in our last issue the new Education Bill which places the Department of Public Instruction under a Superintendent, as it was before Confederation: it changes also the constitution of the Council of Public Instruction. In our next issue we hope to be able to inform our readers of the various changes and appointments necessitated by the new order of things. The Act will come into force on the 1st of February next, and not on the 1st of January, as erroneously printed in our last.

Home and School.

The December number of this popular magazine closes the fouth volume. It is very handsomely illustrated, having a full-page frontispiece and twelve to fifteen other engravings. The principal articles are a carefully-compiled essay on Swans, in which the editor describes the different species of these beautiful birds. and recites anecdotes of their habits of life; a philosophical paper by Dr. Yandell on Birds, showing the adaptation of their forms to the conditions of their existence: a sketch of the life of John Milton, with a portrait of the poet's striking face; a humorous article on Alliteration as a figure of rhetoric; a pleasant chat with American children about the Children of the Chinese; a translation from the French of Flamarion, giving a history of the Transits of Venus. A paper on Household Decoration, a practical essay on Drawing in the Public Schools, and a description of Kindergarden Toys, and how to use them, complete the department of contributions. Decisions on the common-school laws, spicy items of intelligence in the educational and scientific worlds, and notices of some new books for the holidays make up the editorial notes. The publishers promise increased efforts and expense for the year 1876, so as to retain for HOME AND SCHOOL its place as the best of all educational publications in the world. The subscription-price is only $1.50, and the premiums to agents range from $2 to $2,000. Address JOHN P. MORTON & CO., Louisville, Ky.

LITERATURE.

The Power of Silence.

It is a familiar observation that the great processes of nature are mostly conducted in silence, and noise is the sign not so much of growth as of destruction. It is not in the disturbing forces of the earthquake, the tempest, and the fire, but rather in the silent advance of long geological periods, the gradual development of animal life, and the slow cooling of the igneous globe, that her still small voice speaks to the ear of science. It is, however, of human conduct rather than of natural laws that we are thinking when we speak of the power of silence. The power of speech in its various forms, whether of conversation, of argument, of oratory, or, in a wider sense of the word, of written communication, is indeed obvious enough—so obvious that, without it, human life would come to a standstill altogether. Language, as it is constantly observed, distinguishes the rational from the brute creation. But, on the other hand, the ingenious sarcasm of a great master of diplomacy who suggested that the principal use of language is to conceal our

thoughts has a basis of fact to rest upon. At all events it is very often used for that purpose, and in such cases the language of silence, wherever it is available, is the simplest and most effective that can be employed. We say wherever it is available, for a telltale silence, according to the familiar proverb, may be the surest means of revealing, not concealing, thought. It is not every one knows how "to be silent in seven languages;" to speak seven languages with ease, if not a common, is perhaps a less rare accomplishment. But the capacity, where its exists, is a real source of strength, and Solomon intimates that to be wholly destitute of it is the mark of a fool, who "Uttereth all his mind." It is related of Hallam and the poet Roger that in early life they were greatly impressed with some mesmeric experiments they had witnessed in Paris, and on there first return to London began talking freely on the subject; but when they found there revelations received with a chorus of indiscriminate ridicule, they agreed never again to speak of the subject in general society.

In such instances, and many more that might be mentioned, silence is chiefly use as a protective power, and that is no doubt its most obvious though by no means its only, use. Our readers may be aware that in former days the Fellows of Trinity College, Dublin, were forbidden by statute to marry; but the violation of the rule, which in fact they seldom observed, was connived at so long as they maintained a discreet reticence on their cunnubial arrangements, and their wives bore their maiden names in public. One of these wedded celibates was asked by a friend who had been much perplexed on discovering the state of the case how he managed to hold his fellowship? "My dear sir," was the reply, "a man can hold anything who can hold his tongue." It follows of course, that a man who wears his heart on his sleeve will let everything slip through his fingers. That gift of silence is characteristic of the "canny" Scot. A Scotchman will never "tell a lee," but he will make it next to impossible for you to discover what he wishes to conceal The surgical operation which is said to be requisite for getting a joke into him his equally required for getting anything out of him when he prefers, as he very frequently does prefer, to keep is own council. He is an adept at beating about the bush, which is another way of saying that he knows how to hold his tongue. It is often serves to conceal what there might be an indiscretion in betraying, it may also prove a positive means of influence. The Greeks thought it so difficult to speak "good-omened words" that they use the prase as equivalent to what the Romans more directly termed "a sacred silence." And, great as the repute which their philosophers, orators, and poets have won by their writings, it is difficult to determine how much of the still grander reputation of Socrates is due to his having written nothing. In one sense certainly he was the reverse of silence, but he did not commit his thoughts to paper, and he has been credited—we do not say undeservedly—with more than the highest wisdom of those who undertook to report his utterances, while their weaknesses are attributed to themselves. How much again of influence and reputation in ordinary life is due to a judicious silence. We have all heard of Lord Thurlow's awful nod, but there are other professians than the law where a sententious silence has proved the secret of success. How many radical reputations have been built on a capacity for looking wise and saying nothing! A doctor who knows how to insinuate by tone and face and gesture his perfect command of the situation, without committing himself to specific assertions, may make a little skill go a long way, and may even make serious mistake with impunity. It does not seem so easy for a preacher to trade upon his capacity of reserve, yet even in the clerical profession many have gained the reputation of profound divines and able guide in the spiritual life by a judicious management of platitudes. Nor would it be hard to show, and the other hand, how lofty reputations and brilliant prospects have been blighted by too open-mouthed a frankness. It matters little what opinions an aspirant for political or clerical promotion may hold, so long as he understands when to hold his tongue about them; but a single slip may mar a whole career. It is not uncommon, again, to hear people say that they had rather not meet some famous personage for admiration or reverence, for fear the spell should be broken. This means that they are afraid of his saying something that would jar on their preconceived notions about him; and, considering the immense diversity of tastes and methods of judgment, such a result is likely enough. But no previously formed estimate, though it may not be raised, can well be endangered by silence. The policy of reserve has been stigmatized, and sometimes justly, as cowardly, but it is usually safe. As dead men tell no tales, silent men commit no blunders. David said in his haste that all men are liars, and ready speech is apt to be fruitful of criticisms more damaging to those who utter them than to those at whom they are aimed. Moreover, for most men, even the ablest, a novitiate of silence, so to call it, is profitable before they enter on the business of life. Dr. Newman tells us in the *Apologia* that it was said of him in his early days at Oxford, "Here is a man who, when he is silent, will never begin to speak, and, when he once begins to speak, will never stop" Thomas Aquinas was unquestionably one of the greatest intellects of the middle ages, yet so silent was he through all his earlier life, that he was esteemed exceptionally stupid, and when at last he began to speak his auditors exclaimed, "Bos locutus est" His brain had been working the more actively while his tongue was still.

—*Saturday Review.*

Rust.

There is a well known saying to which every true worker will respond.—"It is better to wear out than to rust out." The old Vikings who stood to die, dressed in their full armour, knew the wholesale meaning of this saying; and the modern Viking, the professional man who dies in harness, pulling the labouring oar to the last, and not giving up while a usable fibre remains in him, is the bravest exemple in our present day of a principle which has helped to make England what it is, and by which the earth is to be finally subdued and brought under the control of man's intellect and will.

The curse of man is not work, but indolence; and his misery is not to wear out, but to rust out. To drift into the sleepy shallows, where the day is always noon and life passes lazily in lotus-eating, is the saddest fate that can overtake man or woman; to be out in the field where the workers toil and the strength of humanity is put forth to combat and to conquer, is the only life worthy of or fulfilling the purposes of our race. We need not have work to do; no, not though they are what it is the fashion of the day to call over worked. We need only pity the indolent who doze and dream with folded hands and lie supine by the wayside rusting—their strength failing, their faculties dulled, their use to the world without or within not so much as the use of a twilight moth or a scarcely animated zoophyte, their presence simply cumbering the ground, and taking up the space of better men. They are rusting as they lie, and things rusted are ruined.

Every thing about us rusts for want of use; every faculty we possess, every acquirement we have gained. Mind and body alike needs continual exercise, else the joints get stiff, and disuse produces inability. If we give up walking, in a short time the power of walking gives us up; and the most ardent equestrian sits but uneasily if he has let his horsemanship remain too long a memory and be too little a fact. So of our mental faculties. Memory, fancy, creation, ingenuity, what we will, all leave us if we let the field lie fallow and the rust creep over the steel. We can only enjoy the fruits of past labour by steel keeping up the processes of labour, and nothing remains bright and clear which is laid by without further employment. How often we see this as the result of the most careful, the most elaborate education! Once fairly home from school, the girl on whom masters have been lavished by the dozen quietly lets her accomplishments rust into destruction by abandonment, and in a couple of years' time can neither play nor draw, can neither sing nor read french, has forgotten her german, and would be puzzled to give a correct historical date, all because she has suffered herself to rust, and has not cared to keep her mind and accomplishments polished by daily practice. So with a man He has been taught a great many things which he finds non-essentials in his professional career; and holding the doctrine that all which is not direct help is of indirect disadvantage, abandons as so much *impedimenta* acquirements by which he cannot make his money or increase his business. Classics, literature, art, science, everything with which his mind was enriched in the learning days, rusts and dies out for simple disuse, when he falls foul of the directors of his education and complains, as of so much time wasted and force misapplied, that he was taught latin when he ought to have been crammed in bookkeeping and double entry, and plagued with Greek when his future profession demanded

trigonometry and the art of map making and surveying. He forgets that every acquirement, whether directly useful or only indirectly, is always valuable. At the worst it is latent power—gold in the mine, not made into ready coin bearing interest and of current exchange; but it is always power, however latent, always gold, though not of current coinage. Perhaps he lives to repent his close-set ideas of what was not needful; therefore, to regret the rust to which he has wilfully given up those things which it cost so much time and money to shape and create. But if he does, it will be only when it is too late, when his money is made and his business has increased to its utmost dimensions, when he wants amusement and a hobby, no longer only a profession and so much paying work, and would fain make play with those rusty, corroded, but not worn-out old implements in his mental armoury of the past, and finds them too stiff to be worked, too rusty for any polish to be put on them again. This too is one of the mistakes of a life too closely focussed, such as it is the fashion nowadays to lead. We let the adjuncts rust, cut off the o namental fringes sharp to the leading threads, and think that all which does not help in the establishment of our main purpose is so much waste; by which we impoverish our minds and do not enrich our purses.

We can let our emotions rust into disuse just as we let our mental faculties and our bodily muscles. If we get into the habit of not caring, we fine in time that caring is difficult and even impossible. We can live without love, without pity, without generosity, without compassion. We can, if we choose, let the rust creep over us so that we become all guarled and corroded—the only active principle left in us that of self and self interest, self and self-indulgence. The conscience can be led on lotuses as well as the body; and even virtue must be polished by uso to prevent rusting into decay. We never stand still. Either we are advancing in the way of goodness or we advancing in the way of goodness or we are retrograding; either the rust is growing round about our souls, or it is being diminished by our own efforts vigorously made. If we let ourselves get into habits of temper that are unamiable, of a direction of thought that is uncharitable, we make our way downward by the law of arithmetical progression, of cumulative energy; every day's ill-doing, having at its back the weight of every preceding day's ill-doing, and so deepening the fall and strengthening the growth by the multiplied force of all that has gone before. Spiritual rust grows fast and ever faster; for which cause it is incumbent on us to keep the lamp of our souls ever-bright, and the silver of our thoughts pure and without stain or tarnish.

The rest to which every worker looks as the haven of happiness to be reached while he has still energy enough to enjoy, is just one of those phantoms which men pursue and by which they are led in this strange unreal life of ours. Those phantoms have a good as well as an important influence over us; but we cannot help thinking that a clearer vision would be a more manly state of things, and work as well in the end as phantasms. We should find no haven of happiness in our rest if we had still any vital energy left. We should find instead that rest meant rust, and that it would be better to wear out in work than rust out in idleness. The cry raised on one hand against over-work might with justice be raised on the other against rust, and of the two the latter state is more to be deplored. It takes a vast amount of energy. Only those who fear are rightly on their guard; only those who are resolute can prevail, Mean-while, wherever we look we find examples of crass and fatal indolence—of men given over to sloth, of minds rendered vacant by rust, of faculties perishing for want of sustenance, of acquirements destroyed by want of use. To us it seems that the thing to fear and fight against is that objectless, purposeless, indolence of content by which men bask lazily in the sunny shallows, dreamers of dreams that have neither vitality nor meaning, lotus-eaters without passion or ambition, rusting as they lie, corroding while they live, logs holding the ground against the active, the useful, and the energetican-achronisms that have no place, and which a future better perception of duty will render impossible.—*From the Queen.*

MISCELLANY.

The Metric System.—It is important that this system of weights and measures should be taught in our schools. It is not yet used to any extent in common business transactions, but its use for such purposes is legalized, and the time is coming when the change must be made. A preparation for that change is demanded of teachers, for it is only through the schools that the change can be practically accomplished. For a time, the old and the new must both be taught, and the relations of the two must also be understood, so that if an amount be expressed in one system, its equivalent can be easily given in the other. When any such change is to be made by a people, some generation, or, perhaps, successive generations, must have such extra work to do We may consider it unfortunate that the burden rests upon us; but who not upon us as well as upon our successors?

A nation which has so fully established the decimal system in its currency, that even the very terms, pounds, shillings, and pence, in their old colonial sense, are almost obsolete, ought not to be afraid to extend the decimal system still further. It is true that the different values of the colonial currency rendered a change imperative; but do not teachers of science find a change equally demanded by the confusion which now prevails in text-books and scientific works? The government took the old coins and transformed them into new ones of the decimal system; but it did not do all the work at once. It cannot take our yard-sticks and transform them all into meter measures. The change must be a gradual one. The old measures will be used; but there must come a time when new ones will be purchased in the new system.

The interests of science demand that the people should be educated in the metric system; and, on the other hand, the interests of the rising generation require that they should be so trained as to be able to read, understandingly, scientific works. We would have the system taught in the lower schools at the same time with the other tables, as is now done in some of our best schools. The text-books should also insert it in the proper place, and not in the last part of the book.

The following list embraces the points which we consider it most important to drill our pupils upon:

1. A METER is one forty-millionth part of a meridian of the earth, and is equal to 39·37 inches, or about 3 feet, 3 inches, and $\frac{3}{8}$ of an inch. Practice is estimating and expressing distances in meters, and in the use of square and cubic meters.

2. The meaning of the prefixes *deci, centi, milli, deca, hecto, kilo,* and *myria.* Practice in their use.

3. A CENTIMETER is about 4/10 of an inch, or a little more than $\frac{3}{8}$ of an inch.

4. A KILOMETER is about $\frac{5}{8}$ of a mile. Practice in expressing distances to adjoining towns in kilometers.

5. A GRAM is the weight of a cubic centimeter of water, and is nearly $15\frac{1}{2}$ grains. The temperature and purity of the water, and weighing in a vacuum, are not important for beginners.

6. A KILOGRAM is the weight of a cubic decimeter of water, and is about 2·2 pounds avoirdupois.

7. A TONNEAU, or a thousand kilometers, is the weight of a cubic meter of water, and is about 2,200 pounds, avoirdupoids. It is about 1·1 tons, or a little less than a long ton.

8. A LITRE is a cubic decimeter, and is about one quart. It may be conceived of as the volume of a cube, each side of which is about 4 inches long.

A hectolitre is a little less than 3 bushels (about $2\frac{3}{8}$ bushels); but it is not so important to gain a definite conception of it, as of those before named.

The *are* (a square decameter), and the *stere* (a kilolitre, or cubic meter) are less frequently met with, and it is not of so much importance that they be committed to memory.—*New England Journal of Education.*

Notes on Army Education in Germany.—Extract from correspondence of an American law student in Germany:

"I have been talking this afternoon with my old friend Herr Lange, and I find here an excellent opportunity to pick up information about Germany such as every one that comes here to study ought to get, but which some men who have been in Gottingen two years or more could not furnish me with.

I have been questioning him about the military system and the school system. It seems that all the children in the empire must go to school from six to fourteen years of age, to what they call the elementary school, and if they want to go to any other elementary school within their own district they must get permission; but if, after they are ten years old, they want to go to the gymnasium to prepare for the university, they can do so without special permission.

At twenty years of age each man must enter the army unless he

is sick or weak, and must serve three years. The sick ones only have their service deferred till they are well. If one is part way through the gymnasium he can wait till he gets through, and then serve only one year; or if he is not in the gymnasium, but can pass an examination in French, English and mathematics including arithmetic, Algebra, and Geometry, he need serve only one year. These one-year men are called freewilligers, or freewillers. They are left more to themselves, have more freedom, and can go to the beer gardens in the evening. They provide their own clothes and food, and, I think, their own lodging. At least I know that some of them sleep at home when their regiment happens to be quartered in the place where they live. The effect of all this is to educate the masses; for I think they are obliged to study more or less during their three years service. It certainly does the peasants good. They say the officers make them do things straight and kick 'em about freely. The freewilligers are treated altogether differently. After their three years are over they come back about once a year for a week or two and go through the tactics, so as to not forget. The justice of making those that can pass the examination serve only one year, is that they can learn the discipline on an average in about one third of the time that the peasants need.

Overwork at School.—The *Lancet* again protests against the injurious effects of the increasing overwork of boys at school, and the evils of giving them so many lessons to learn out of school hours, an evil of which many parents in Canada are painfully sensible in the break-up of the health, or premature death of victims of the forcing and cramming syetem. On the same subject the London *Globe* remarks:—"This excessive labour imposed on boys at school is an evil assuming most alarming proportions, and it is time Parents began to consider whether the present system ought not to be seriously discouraged. The mania for competitive examination has led to an immense amount of work expected from boys and girls, but especially from boys. The great public schools would not modify their teaching to suit the new requirements, so that proprietary schools were started to fulfill the functions they wisely declined to exercise. The earlier of these proprietary schools adopted a high ideal, but many others have since been founded and the later institutions are too apt to try to gain advantage over the rivals by forcing promising pupils to undertake an amount of work that is ultimately prejudicial to health. "We have examined the prospectuses of many of these schools," says our contemporary, "and we have generally found the hours of work to be excessive, ranging from forty-five to forty-eight hours, and six hours and a half on two half holidays. This calculation does not include the Sunday school work, which may be fairly reckoned as three additional hours." Now most adults find eight hours a day of mental activity quite as much as they are equal to. It is, therefore, far too much for children, "who have to expend so much force to meet the vital requirements of the growing frame." The *Lancet* believes that more than thirty-five hours of school work a week for boys under fourteen, and forty-two hours for boys above that age, is incompatible with the conditions of health. These are the hours of the great public schools, and therefore may be concluded to be quite sufficient.

Aphorism by Horace Mann.—Soundness of health is preliminary to the highest pursuit.

—Conceptions are neither true nor false, but judgments are.

—It was the sin of Pharoah to make the children of Israel write composition without ideas—That is, to make bricks without straw.

—Mohamet said, "the learned man's ink, and the martyr's blood, are equally valuable in the sight of God."

—"There is a great deal of cant on the subject of education," said Mr.———. "Yes, there may be a great deal of *can't*," was the reply, "but there is much more *wont*."

—The rich and the poor are but different ventricles of the same heart of humanity.

—A teacher who is attempting to teach without inspiring the pupil with a desire to learn, is hammering on cold iron.

—If you can express yourself so as to be perfectly understood in ten words, never use a dozen.

—You need not tell all the truth, but let all you tell be truth.

—As an apple is not, in any proper sense, an apple until it is ripe, so a human being is not in any proper sense a human being, until he is educated.

—A man of worth is like gold;—never out of fashion.

—A Brooklyn scholar, embodied in a composition the statement that "the idea of a devil first came out of Persia, but it didn't amount to much till after the discovery of America."

Why some people are poor.—Silver spoons are used to scrape kettles.

Coffee, tea, pepper and spices are left to stand open and lose their strength.

Potatoes in the cellar grow, and the sprouts are not removed until the potatoes become worthless.

Brooms are never hung up and are soon spoiled.

Nice handled knives are thrown into hot water.

The flour is sifted in a wasteful manner, and the bread pan is left with the dough sticking to it.

Clothes are left on the line to whip to pieces in the wind.

Tubs and barrels are left in the sun to dry and fall apart.

Dried fruits are not taken care of in season and become wormy.

Rags, string and paper are thrown into the fire.

Pork spoils for want of salt, and beef because the brine wants scalding.

Bits of meat, vegetables, bread and cold puddings are thrown away, when they might be warmed, steamed and served as good as new.

Cures for fits.—For a fit of passion.—Walk out in the open air; you speak your mind to the winds without hurting anyone, or proclaiming yourself a simpleton.

For a fit of Idleness.—Count the ticking of a clock; do this for an hour and you will be glad to pull off your coat the next, and work like a negro.

For a fit of extravagance and folly.—Go to the workhouse and speak with the inmates of a jail, and you will be convinced.

Who makes his bed of brier and thorn,
Must be content to lie forlorn.

For a fit of ambition.—Go into a churchyard and read the gravestones; they will tell you the end of ambition. The grave will soon be your bedchamber, the earth your pillow, corruption your father, and the worm your mother and sister.

For a fit of despondency.—Look on the good things which God has given you in this world, and to those which He has promised His followers in the next. He who goes into his garden to look for cobwebs and spiders, no doubt will find them; while he who looks for flowers may return into his house with one blooming in his bosom.

For all fits of doubt, perplexity and fear.—Whether the respect the body or the mind; whether they are a load to the shoulders, the head or the heart, the following is a radical cure which may be relied on, for I had it from the Great Physician: "Cast thy burden on the Lord, and he will sustain thee."

For a fit of Repining.—Look about for the halt and the blind, and visit the bedridden, and they will make you ashamed of complaining of your lighter afflictions.

Can you swim?—At one of the colleges a short time ago as the students were practising at rowing, one boat ran against and capsized another, and a fine young man was drowned. In reading of this we were reminded to ask our boys if they can swim. It seems very strange that any one should be training for a boat-race and not know how to swim. Every one of you who is large enough should learn to swim this very month. Of course you will talk with your parents about it, and not do anything that they do not think perfectly safe and proper. They no doubt wish you to learn, and at the same time may think that the place where you wish to go is not safe. No one who cannot swim should trust himself in a boat—indeed the need of being able to swim is so great that it is not necessary to argue the point. It is easier for boys to learn than it is for girls, but there is no great difficulty in the way if girls wish to learn, and they would feel much safer on the water if they knew that they could, in case of accident, keep themselves afloat. In learning, try to have some older person teach you. Some boys learn at once, while others are a long while about it. The writer learned in this way: there was a place in the river where the bottom sloped very gradually, and one could go out a long ways without getting out of depth. We would wade out until the water was up to our armpits, and then turn towards the shore and try to swim to it, knowing that we could touch bottom at any time. It took but a little while to learn. If the hands and all parts are kept under water, a person will float with the face out of water. It is well for those who cannot swim to remember that if they will keep perfectly still they will not sink. At the swimming-schools they have a plan which any one can adopt. A band is fastened around the chest to which is attached a strong cord several feet long; the other end of the cord is fastened to a long pole; the teacher holds the pole and directs the movements of the pupil, who is at the end of the line. A very little aid will keep one afloat, and a band made of stout cloth will answer the purpose. After the pupil learns to strike out properly while held up by the cord, he is gradually taught not to depend upon this. Watching the movements of a good swimmer will teach you more about using the

hands and feet than anything that can be written. There are some rules that should always be observed: keep all parts, hands and feet, well under water, and do not be afraid to sink the whole body up to the chin: throw the head well back, and hollow the spine, or back-bone; this allows the weight of the head to come over the chest, which is the lightest part of the body. Learn to breathe through the nostrils; some swimmers make a great spottering in throwing water from the mouth; it is easy to learn to swim with the mouth shut. Make every movement slowly and quietly; it is a great fault with beginners that they make hard work of swimming, and seem to think that they must make great exertions. Be quiet, and you will find that swimming need not tire you any more than walking. Do not go into the water when heated, very tired, or after eating a hearty meal. Finally, when you get a chance watch the best of all swimmers, and see how neatly and quietly he does it, and try if you cannot swim as well as—a frog!—*Agriculturist.*

—*Scotland has long got credit* for the excellent provision made for the general education of her sons, and the parish schools of that country have long been famous as having been the chief instrumentality in giving innumerable Scotchmen their first start in life, and crowning their careers with great and varied prosperity. Too much in praise of what the Scottish parish schools have accomplished could scarcely be urged. At the same time, it is being discovered that after all that has been said and sung about the Scottish system of general education, it is not by any means so perfect as it ought to be. Even with the late changes, it is not keeping pace in advancement with other countries till lately far behind. The great want is an intermediate class of schools between the ordinary parish or primary ones, and the University. On this account the whole educational system is being greatly injured. The teachers in parish schools are seeking to do work which is not properly theirs at all in preparing clever boys for the University, while in doing so they necessarily neglect the great body of their pupils and the proper business of the schools. On the other hand, the University professors in their junior classes are obliged to do work which ought to have been gone through before students thought of venturing to a University at all. John Knox made provision for such intermediate schools in every "notable town," but that part of his programme has never been carried out. The sooner it is the better. Funds are not wanting. The Scotch Hospitals for the support and education of certain classes of boys and girls have ample resources, and are not turning these to anything like good account. Heriot's Hospital, for instance, has as large a revenue as Eton: Donaldson's Hospital doubles that of Rugby. Why not, it is urged, get those funds appropriated to the advancement of higher education? Scotland will need to bestir herself or be hopelessly left behind in the educational race.

How to remove stains.—Stains caused by acids, fruit, tea, or wine can usually be removed by spirits of ammonia, diluted in half the quantity of water. If the stains of fruit of claret are fresh upon the *naperie* they can be taken out by pouring boiling water directly upon the spot and rubbing it until it disappears. Turpentine, pitch or tar can be removed by saturating the spot with sweet-oil, or a little clean tallow can be spread over it, and left it remain for twenty-four hours. Then if the article is silk or worsted, scrape off the cold grease carefully and rub the spot with ether or spirits of wine; then if of cotton or linen, wash it in the usual manner. Spirits of turpentine will remove recent spots of paint. Wax and spermaceti should be scraped of gently and a hot flat iron applied, over a piece of thick brown paper, until the spot entirely disappears. Other grease spots can be removed from silk or woolen by scraping a little French chalk upon the place and placing either a warm iron underneath it or a a cup of boiling water. The heat melts the grease and the chalk absorbs it, and then it can be brushed off.

Ink stains in woolen table-covers and carpets can be removed by washing the spots with a teacupful of warm water to which a teaspoonful of oxalic acid has been added. After rubbing it clean, rinse off the acid with clean cold water. If sour, or even sweet milk is rubbed upon a fresh ink stain it will soon be effaced. Then wash it clean, with a flannel dipped in warm water, and rub it dry. If white cotton or linen be stained with ink dip it at once into a cup of milk, and squeeze it repeatedly until the stain is gone; rinse it out in cold water. If ink is spilled upon floors of furniture rub it out with a cork dippep into alcohol, and wash off with clear cold water.

Port, sherry, and claret wine stains can be removed by dipping the spot into boiling water and letting it remain until cool.

If linen or cotton become scorched in ironing, wet the places in hot soap-suds and place the article in the sun until it is bleached out. Or dip the spot into sour milk, and let it remain in it for twenty-four hours, or longer, and then wash as usual. Mildew stains can be removed by several methods from linen, &c. Powdered chalk mixed with soft soap until it becomes a very soft paste, and then spread over the spots, and place in the sun until it becomes entirely dry, will often remove all the stains; but if after rubbing off the chalk a little discolouration still is seen, give another coating of the paste and keep it in the sun as before. If the scorching is slight, the stain can often be removed by dipping it into buttermilk, or bonyclabber, then laying it in the sun to whiten.

Yellow muslins can be bleached white by placing them on a shallow dish, and covering them with suds made of white soap, and putting it into the sun, renewing the suds daily until the muslins are perfectly white.

Oil stains on floors or carpets can be covered over by a paste made of fuller's earth and water, and when it is thoroughly dry, brush it off, and renew if the stain is still to be seen. For carpets a little ox-gall should be added to the paste. Stains of hot water on varnished tables can be taken out with a little sweet oil rubbed upon them, and afterward a few drops of spirits of wine should be rubbed in. A teaspoonful of oil of vitrol in a tablespoonful of water will take out stains of ink, &c., then wash off the spot with oil. Apply the acid with a small brush. The dark stains on silver and plated ware can always be removed by a little weak sulphuric acid. Pour the acid into a saucer, wet a small linen rag in it and rub until the stain is gone. Then polish it with a flannel dipped into spirits of wine and whiting.

The Forehead.—The upright forehead, with its various modifications of squareness and partial curving, generally denones the sound and noble understanding, as opposed to the retreating form, which indicates the precise reverse. A merely high forehead does not, however, always imply a good forehead: for the form, proportion, sloping head, arching and position of the bone of the forehead, are tests of the mental power and character. Even the colour and smoothness of the skin, together with the lines of wrinkles must be taken into account, for the expression and state of the mind. A perfect forehead should be one-third of the whole face, or equal to the nose in height, the covering skin clearer than the rest of the face, and smooth and free from wrinkles, have the power of wrinkling in deep thought, anger, or pain. A forehead, to be perfect, should be, when seen in the profile, neither too retreating. The higher the forehead the more comprehension and less activety. The more compressed, firm, and short, (if not too chort), the more concentrated and firm the character. The more curved the the top, the more gentle and flexible the character; while the less curved—that is the more square the top, the more determination, perseverance, and sterness. If the forehead is perfectly upright from the eyebrows to the roots of the hair, there will be a sufficient understanding; while a projecting forehead will denote imbecility, immaturity, weakness, or stupidity, accordingly as modified by the other features. On the other hand, the upright forehead, which is gently arched at the top denotes a calm, cold, deep thinker.

ABSTRACT FOR THE MONTH OF DECEMBER, 1875.

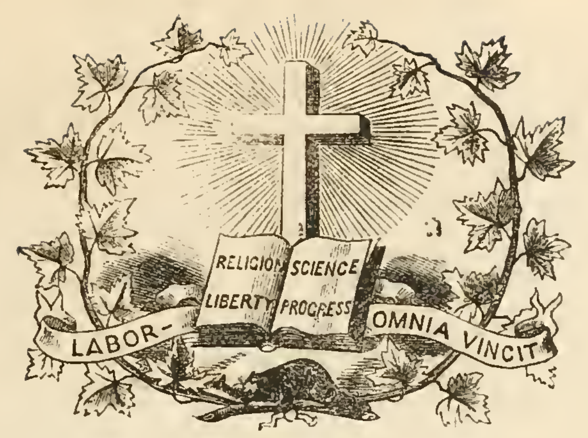
OF TRI-HOURLY METEOROLOGICAL OBSERVATIONS TAKEN AT MCGILL COLLEGE OBSERVATORY. HEIGHT ABOVE SEA LEVEL, 187 FEET.

Day.	Thermometer.				* Barometer.				†Mean Pressure of Vapour.	‡ Mean Relative Humidity.	Wind.		Sky Clouded in Tenths			° Rain and Snow Melted.	Day.
	Mean.	Max.	Min.	Range.	Mean.	8 Max.	8 Min.	Range.			General direction	Mean Velocity in m. p. hour.	Mean.	Max.	Min.		
1	—5.59	—0.6	—12.7	12.1	30.3397	30.377	30.306	.071	.0220	67.1	W.	11.4	1.4	10	0		1
2	1.62	7.1	—6.3	13.4	30.5260	30.585	30.382	.203	.0299	65.7	W.	10.8	0 5	2	0		2
3	7.86	14.2	1.1	13.1	30.4391	30.572	30.310	.262	.0490	77.4	E.	6.5	5.4	10	2		3
4	20.09	25.2	13.2	12.0	30.2234	30.289	30.162	.127	.0861	79.4	S. E.	1.5	8.5	10	1		4
Sunday 5		20.4	10.2	10.2							N. E.	9.2					5 Sunday
6	17.85	22.0	15.7	6.3	29.8586	29.894	29.822	.072	.0674	69.4	N. E.	10.0	4.0	10	0		6
7	15.71	18.8	10.3	8.5	29.7221	29.814	29.613	.201	.0729	81.8	N. E.	9.7	7.5	10	0		7
8	22.12	27.3	16,8	10.5	29.5780	29.611	29.547	.064	.1110	92.9	N. E.	1.3	10.0	10	10	0.08	8
9	26.25	27.7	24.3	3.4	29.6761	29.743	29.620	.123	.1336	94.1	N.	6.1	9.9	10	9	0.38	9
10	21.66	26.9	14.2	12.7	29.8970	29.982	29.784	.198	.0996	84.9	W.	15.1	4.8	10	0	0.01	10
11	19.89	23.9	14.2	9.7	29.8485	29.960	29.719	.241	.1002	93.0	S.	6.6	8.4	10	2	0.07	11
Sunday 12		26.0	16.1	9.9							E.	3.7				0.15	12 Sunday
13	24.84	32.0	15 8	16 2	29.1344	29.309	29.952	.357	.1290	95.0	S.	16.7	10.0	10	10	0 51	13
14	10 41	16.8	7.9	8.9	29 5065	29.972	29.323	.349	.0581	83.7	W.	25.5	9.2	10	4	0.06	14
15	5.19	9.7	2.6	7.1	29.7252	29.801	29.597	.204	.0439	80.4	S. W.	13.7	5.8	10	0	Inapp.	15
16	16.01	28.0	3.2	24.8	29.6[illegible]84	29.708	29.537	.171	.0784	83.2	S. W.	12.0	6.0	10	0	0.10	16
17	15.29	22.8	4.4	18.4	29.5855	29.683	29.501	.182	.0799	90.4	S. W.	12.5	10.0	10	10	0.37	17
18	—3.69	5.8	—6.3	12,1	29.8046	29.826	29.743	.083	.0300	80.4	W.	16.3	5.5	10	0	0.02	18
Sunday 19		—3.3	—19.0	15.7							N. W.	13.3				0.04	19 Sunday
20	—12.96	—6.2	—22.5	16,3	30.4784	30.682	30.227	.455	.0235	98.2	E.	9.3	7.2	10	0	0 05	20
21	21.29	42.8	—5.8	48.6	29.9191	30.206	29.683	.523	.1359	93.5	S.	17.9	10.0	10	10	0.06	21
22	37.61	41.8	33.8	8.0	29.6867	29.815	29.467	.348	.1983	87.0	S. W.	16.4	7.9	10	0	0.02	22
23	36.27	44.8	17.5	27.3	29 6875	30 225	29.415	.810	.1770	75.9	N. W.	21.0	8.7	10	0	0.02	23
24	8 70	21.5	1.7	19.8	30.3200	30.503	29.949	.554	.0529	77.2	N. E.	14.2	6.2	10	0	0.35	24
Xmas. 25		40.2	21.3	18.9							S. W.	24.2				0.35	25 Xmas
Sunday 26		37.3	12.0	25.3							N. E.	14.5				0.30	26 Sunday
27	21 79	41.5	11.2	30.3	30.1846	30.556	29.515	.041	.0915	69.7	N. W.	16.9	1.0	10	0	0.05	27
28	13.36	19.0	8.2	10.8	30.3930	30.546	30.283	.263	.0676	85.1	E.	7.2	10.0	10	10	0.02	28
29	15.25	22.0	10.0	12.0	30.3257	30.414	29.169	.245	.0816	92.2	N. E.	5.1	8.4	10	0		29
30	36.39	38.0	22.0	16.0	30.0794	30.124	29.025	.098	,1935	89.7	S.	11.8	10.0	10	10	0.07	30
31	41.71	54.0	37.3	16.7	29.9608	30.112	29,785	.327	.2504	95.1	S. W.	18.3	9.9	10	9	0.02	31
Means......	16.73	24.11	8.78	05.32	29.9446			.2528	.0947	83.94		12.23	7.43				

* Barometer readings reduced to sea-level and temperature of 32° Fahr. † Pressure of vapor in inches mercury. ‡ Humidity relative saturation, 100. Observed. Ten inches of snow is taken as esqual to one inch of water.

Mean temperature of month, 16.73. Mean of maxima and minima temperature, 16.44. Greatest heat was 54.0 on the 31st; greatest cold was 22.5 below zero on the 20th,—giving a range of temperature for the month of 76.5 degrees. Greatest range of the thermometerin one day was 48.6, on the 21st; During 33 hours on the 20th and 21st the thermometerrose through 62 degrees; least range was 3.4 degrees on the 9th. Mean range for the month was 15.3 degrees. Mean height of the barometer for the month was 29.9446. Highest reading was 30.682, on the 20th; lowest was 28,952, on the 13th, giving a range of 1,73 inches. Mean elastic force of vapor in the atmosphere was equal to .095 inches of mercury. Mean relative humidity, 83.94. Maximum relative humidity was 100 on the 20th. Minimum relative humidity was 51 on the 1st and 2nd. Mean velocity of the wind was 12.23 miles per hour. Greatest mileage in one hour was 34 on the 14th. Mean of sky clouded was 74 per cent. Rain fell on 8 days. Snow fell on 18 days. Rain or snow fell on 23 days. Rainfall was 0.68 inches. Snowfall was 24.2 inches. Total precipitation in inches of water was 3.10.

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TABLE OF CONTENTS.

On Educational Training.

AN ESSAY, BY NEIL ARNOTT, M. D., F. R. S., F. G. S., ETC.

PART I.

1. In comparing man with the inferior races of animals it is seen that his great superiority to all is due not to his bodily strength or the acuteness of particular senses, for in these respects he is surpassed by many, but to his mind, with its great power of gradually acquiring knowledge of the universe around him, and of contriving arts to subject events to his will. His knowledge becomes power, and a man of cultivated understanding is as far superior to an uncultivated man as the latter is to a brute.

2. A most striking point of difference is that man can form and use language, whilst brutes cannot. A brute can know only what its individual experience may teach it concerning the one spot of earth on which it resides, and the one small portion of time during which it lives; but any man, through language, may learn what other men have known or done. And after the inventions of writing and printing, which made language visible and permanent, a numerous society, or indeed the whole human race, may be regarded as forming only one vast rational being, with millions of eyes and hands, and separate yet connected minds, all laboring for the common good, and with memory which never forgets what has once been known. This great compound being has evidently yet the characteristics of youth, and is manifesting rapidly increasing vigor.

3. A savage man cannot contend in strength with the elephant or lion, nor run with the deer, nor see in the night like the owl, nor smell like the setter dog, etc., but the son of civilization constructs and controls, as if it were part of himself, the noble steam-engine, with force of a hundred elephants, if he wills it, to do any work; against the assailing lion or tiger he can point his fire-arms with instant effect; the deer or grey-hound is a sluggard to him as he glides along on his railway; the owl's sight is blindness compared to his when aided by his telescope; and with his microscope he discovers worlds of life and activity, where the sharp eye of the wren can see nothing. Then he goes on steadily making additions to his powers.

4. Such facts exhibit man as a progressive being, in strong contrast with the other races of animals, which have changed as little since the beginning of human records as the trees and herbs of the thickets which gave them shelter. Men, from a primitive state of naked, houseless strangers in a land offering them only raw vegetables for sustenance, have gradually by the use of their reason attained their present high eminence. The inferior animals were formed by their Creator, such that within one life or generation, they should attain all the advancement of which their nature was susceptible. Some wants were at once supplied, as instanced in the clothing of feathers to birds, and of furs to quadrupeds; others were provided for by remarkable aptitude, conferred on the young to learn quickly the use of their limbs or organs, as in running, flying, swimming, etc.; and where more considerable mechanical skill seem to be required, as by the bee in making its honey cells, or by the bird in constructing its beautiful nest, there a peculiar instinct was bestowed. Thus a crocodile which issues from an egg hatched in the warm sand, and never sees its parent, become as perfect and knowing as any crocodile which

has lived before, or which will appear after it. How different is the story of man; he is born into the world the most helpless of living beings, and changes so slowly that, if deserted early by his parents, he surely dies; if, even after two or three years of care, he be abandoned entirely to himself, as to a few individuals has happened who yet had survived for a time in woods, he grows up in some respects inferior to the nobler brutes. Then history recounts of remote times, that over large portions of the earth men lived in condition little superior to that of brutes, as they may still be seen in Australia and elsewhere. Their condition is described as that of houseless savages, ill able to defend themselves against the wild beasts which shared the woods with them, and the inclemency of the weather, and the consequences of want and fatigue, and as being to one another often more dangerous than any wild beasts, unceasingly at war among themselves, and destroying one another with every species of even cannibal cruelty; and many countries formerly in such miserable state, have gradually become, through increase of human knowledge, fertile regions, with their noble cities, inhabited by myriads of civilized men.

5. Schools, colleges, universities and books are among the means which, in the progress of human improvement, have been contrived for thus cultivating the minds of individuals and of nations; and in regard to all of these there have been a progress of improvement as marked as in other things which have proceeded from the working of man's intellect. The decision, however, as to the subjects chosen, the order of study, and other particulars, had to be based on a due consideration of the whole field of human knowledge with its natural divisions, and the bearings of these on human welfare; and the views taken, until lately, were far from being complete. A simple arrangement, addressed to common apprehension, is here sketched

THE ORIGIN, PROGRESS, AND SCIENTIFIC ARRANGEMENT OF HUMAN KNOWLEDGE.

6. The human race is permanent; but the individuals composing it are in a course of constant change and renewal, at the rate of about a thirtieth part annually. The children, however, in receiving the bodily constitution of their parents, do not receive therewith the smallest portion of the knowledge which the parents possessed, but have to gather for themselves after birth through the five organs of the senses, which have been called, therefore, "the fives gates of knowledge" and internal consciousness, the whole material of their own future store. Thus, when a child gets an orange for the first time, he receives impressions—first through the skin of the touching hand, of its size, form, weight, etc.; through the eye, of its color; through the palate, of its taste; through the nostrils, of its smell; and through the ear he may hear the sound or name which men have connected with it. The impression being retained in the memory as a group, constitute his knowledge of the orange. In the same manner the knowledge of other objects is obtained.

7. If, as a burning lamp is constantly supplied with oil to keep it alight, human beings, after birth, be duly supplied with the four prime essentials to life, they may live healthily for about seventy years, passing through the stages of youth, maturity and decay to death. These essentials are pure air, warmth, aliment, and rest, after work. If deprived of the first, the individual dies in a few minutes, as by drowning or other suffocation; if the second, he dies in a few hours, as when overwhelmed in a snow storm; if of the third, he dies in a few days, or weeks, or months, according to the circumstances. The first indication of the child having animal sensibility is its struggle and crying when it wants a necessary, as food or warmth. It has then the feeling which it afterwards learns to call *pain;* when the want is supplied it becomes tranquil, and it has the feeling which it learns to call *pleasure.* In after-life, to obtain pleasure and to avoid pain, near or remote, become the great motive to voluntary activity. Among the objects around the child, it soon begins to distinguish those which most nearly concern it, by causing pleasure or pain; and thus the mother or nurse, the fire, the candle, become early acquaintances.

8. As the growing individual afterwards has the attention directed to the apparent infinity of objects in the universe around, the mind soon makes the grand discovery that there are resemblances among them—in other words, that the apparent infinity is only a repetition of a certain number of kinds. There are soon distinguished, for instance, what in the English language are called dog, horse, sheep, etc., among the things living and moving, called *animals;* the rose, myrtle, oak, etc., among things growing from the earth, called *vegetables;* and such as lime, flint, gold, etc., among things taken out of the earth, called *minerals;* and the mind, becoming aware that by studying a specimen or exemplar of each kind, its limited power of memory may acquire a tolerably correct knowledge of the whole enabling persons to obtain more easily what is useful to them, and to avoid what is hurtful; the desire for that knowledge, called curiosity, would arise with the first exercise of reason. Accordingly the pursuit of it has been unremitting, and the labor of ages has at least nearly completed an arrangement of the constituent materials of the universe under the three great classes of

Animals,
Vegetables,
Minerals (including all other things not having life).

commonly called the three kingdoms of nature, and of which the minute description has been called *Natural History.* And museums of Natural History have been formed which contain a specimen of almost every object belonging to the classes; so that now, a student, within the limits of a moderate space or garden, may be said to be able to have under view the whole of the material universe.

9. It might be thought that if a man knew all the *things* or existences in the world he had nothing more to learn. But it is not so, for the things of today do not remain the same for tomorrow. A seed is growing to be a plant, a boy to be a man, mountains are being wasted by the action of the weather, lakes are being filled up by the solids which the feeding streams carry into them, the tides and rivers and clouds are always moving. The universe, therefore, is a scene of constant motion or change. With respect to the *changes,* however, as with respect to the *things* themselves, the second grand discovery would soon be made, that there were resemblances in the multitude; and self-interest operating in the second case as in the first, having prompted to careful classification, we are enabled in the present day, as the result of countless observations and experiments made through a series of ages, to say that all the motions or changes, or phænomena (word synonymous here) of the universe, are merely repetitions of mixture of a few simple manners or kinds of motion or change, which are as constant and regular in every case as when bringing the returns of day and night and of the

seasons. All these phænomena are found to be of four very distinguishable kinds or classes which have been called

Physical or Mechanical,
Chemical,
Vital or Biological, and
Mental or Psychological.

The simple phrases which describe the resemblances among them are called *General Truths*, or *Laws of Nature*, and as a body of knowledge, they constitute what is called *Science* or *Philosophy* in contradiction to *Natural History*, already described. Now, as man cannot, independently of a supernatural revelation, learn anything but what respects either the momentary states, past or present, of himself and the objects around him, or the manner in which the states have changed. Natural History and Science, in the senses now explained, make up the sum of his knowledge of nature.

10. As an example of a general truth, or law of nature, we may take the physical law of *gravitation* or *attraction*, which declares that every particle of matter in the universe attracts and is attracted by every particle with a certain force varying in a certain manner with the distance.

1st. It may be observed that bodies in general, if raised from the earth and left unsupported, fall towards it with force called their weight. It has long been thought that flame, smoke, and certain vapors which, when free, ascend in the air, had positive *levity* as a property, the contrary of weight; but, after a time, it was discovered that these things were also substances having weight, but were immersed in an unseen atmospheric air which was *heavier* than they, and which, therefore, lifted them up as water lifts cork or oil. Thus a *resemblance* was detected where a *difference* had long been believed to exist. 2d. It is found that any contiguous, hanging bodies are drawn towards each other so as not to hang quite perpendicular, and that a plummet suspended near a hill is drawn towards the hill with force less than that with which it is drawn towards the earth, but in exact accordance with what should follow from the different sizes of the hill and earth, and the difference of distance of the plummet from the respective centres of the two. It is thus proved that weight itself is only an instance of a mutual attraction operating among all the constituent elements of the globe, and which explains, moreover, the fact of the rotundity of the globe, all the parts being drawn to a common centre, as also the form of dew-drops, raindrops, globules of mercury and of many other such things. 3d, It is observed that all the heavenly bodies are round, as if formed of material obeying the same law. And, lastly, that these bodies, however distant, attract each other, for the tides of our ocean rise in obedience to the attraction of the moon, and become *high* or *spring-tides* when the moon and sun operate in the same direction. Thus the sublime truth has become evident, of which the sufficient proofs were first detected and arranged by the genius of the immortal Newton, that there is a power of attraction, called weight while acting on earth, and there maintaining a stable order among things generally, but which connects together also the distant bodies of this solar system, and probably as limited only by the bounds of the universe.

11. The process of comparing the facts or phænomena learned by observation and experiment, so as to extract from them the general circumstances in which they resemble, is called the method of reasoning by *induction*, because numerous single facts are brought together for examination and comparison; and the expression for such circumstances discovered with respect to them all, is termed the truth, or scientific principle under which they are to be classed. Lord Bacon very clearly described the process. Progress in this kind of knowledge has been slow, owing to the great complexity of many ordinary phænomena, arising from several laws acting together and with great variety of combination. All the reasonings proceed on the assumption, early suggested, and afterwards confirmed by universal experience, that the *course of nature* remains uniform, and that what has happened once under given circumstances. The knowledge of these so-called laws enables an instructed man, when he witnesses some facts forming part of a known series, to announce what the state of things will be at any future time, and what it must have been in times past. Thus, by understanding the movements of the heavenly bodies, he foretells their positions at any future time so accurately that he publishes in the almanacs, without fear of errors, his prediction of the very moment of any coming eclipse. Even the wind and the rain, which in common speech are referred to as types of uncertainty and change, obey laws as fixed as those of the sun and moon; and already as regards many parts of the earth, man can foretell them with certainty; he plans his voyages to suit the coming monsoons, and he prepares against the floods of the rainy seasons. He can similarly judge of other future events belonging to the other departments of nature.

12. The *phænomena* or *changes* of nature when thus reviewed by the human mind, according to their ressemblances, fall as naturally into the four scientific classes named aboved as the *things* of nature fall into the classes of natural history; and it will not further appear that the mind, to acquire complete acquantance with phenomena, must study the classes in a certain order, which is that both of their mutual dependence and of their simplicity in relation to man's power of apprehension.

13. (2.) *Physics* (called also *Natural* or *Mechanical Philosophy*). The numerous changes among things which would first attract common notice and become objects of study, are those in which motions very evident to the senses occur. Such are the motions of all bodies falling directly or rolling down slopes; of currents of water and air, and of bodies carried by such currents; of bodies thrown or projected by any force; of machines, as water-mills, wind-mills; of carriages on railways; of the heavently bodies, and so forth. All these are called *physical* or mechanical motions. Now, all these are explained by a very few general expressions or laws called since Newton's time, the laws of motion, and which are fully elucidated under the four words, *atom* or *material*, *particle*, *attraction*, *repulsion*, and *inertia*. It gives a striking idea of the nature and value of methodical *science*, to be told that a person who understands aright these words—viz: how the imperishable particles of matter, by mutual *attraction*, approach and cling together to form masses which are solid, liquid, or aëreform, according to the quantity or strength of the *repulsion*, of heat remaining among them, owing to their *vis inertiæ* acquire and lose motion in exact proportion to the force of attraction or repulsion acting on them—understands a great proportion of the phænomena of nature; but such is the fact. *Solid* bodies existing in conformity with these truths exhibit all the phænomena of *mechanics*; liquids exhibit those of *hydrostatics* and *hydraulics*: airs, those of *pneumatics*. and so forth.

14. (2.) Chemistry—Another set of changes or phænomena, more tranquil in their nature, soon attract attention, such as the rusting of iron exposed to the weather,

the vanishing of charcoal placed in a fire-grate and heated to redness, the change of grape-juice into wine, and of wine into vinegar, etc.; and although in all of these there is a motion of ultimate particles assuming new arrangements, the human eye, not being able to see the particles, does not detect the motion, but in the results. Had there been only one kind of substance or matter in the universe, the laws of physics would have explained all the phænomena; but there are iron, sulphur, charcoal, and about fifty others, which, when taken singly, obey the laws of physics; but when brought together under certain circumstances, enter into combinations according to peculiar affinities. The innumerable phænomena of this class are now arranged under a small number of general laws of affinity, and the study has become proportionately simple. It is to be remarked, however, that during the changes the substances are not withdrawn from the influence of the *physical* laws, for no substance ever loses its weight or inertia. What are called chemical states and motions are therefore only modifications of physical states and motions, and many chemical changes are merely beginnings of physical change, as when the altered chemical arrangement of particles in ignited gunpowder produces the physical explosion. And nearly all the manipulations of chemistry, as weighing, measuring, transferring gases from vessel to vessel are directed by physics alone. Chemistry, then, cannot be to any considerable extent understood or practiced by a person who is ignorant of physics.

15. (3.(*Life, or Biology or Physiology.* The only changes or phænomena not comprised in the two classes of physics and chemistry, are some of those occuring in living bodies, and which, being the most complicated of all, have been the last to be studied and methodized; and much has yet to be learned respecting them. Such phænomena are growth, nutrition, decay, death, nervous action, etc. These occur in the midst of structures subsisting and acting in accordance with the laws of physics and chemistry, and laws of life, therefore, appear influencing the other two sets, and cannot be studied independently of them. The science of life, or physiology, has the two divisions of *animal and vegetable phisiology.*

16· (4.) Mind. There remains still to be considered one class of phænomena or changes in nature which are cognizable to man, not by his actual organs of sense, but by his own consciousness or internal perception, and by his observation of the actions of other persons in different mental states—namely, the changing states of human mind. These, also, are found to proceed in accordance with laws. But it is to be remarked that the laws of mind, which man can discover, are laws connected with body, too, and influenced by bodily conditions; for how differently is the same mind manifested in youth and age, in health and disease! Mental science is by far the most important department of science, and it stands eminently distinct from all the others on several accounts. Unlike that of *organic* or *bodily* life, which could not be fundamentally understood until physics and chemistry had been previously investigated, this made extraordinary advances in some departments at a very early age, when the others, as methodized sciences had scarcely begun to exist. In proof, we may refer to the admirable writings of the Greek philosophers on logic, morals, government, etc.

17. The established order or laws of change in regard to sequences of mental states are well exemplified in the processes of *giving names* to objects, and of counting and measuring them. A single object, an orange for instance (as already described at Article 7), if placed near a person, by acting on the different organs of sense and through the connecting nerves on the brain, causes in the mind a different sensation for each sense. The touch of the land gives the impression of size and shape, the sight gives that of color, the nose of fragrance, the palate of taste. These different impressions, called simple ideas, being made nearly at the same time, become associated or grouped together, and form the complex idea of the fruit, which remains afterwards permanently in the memory, and is reproducable at any future time by any other idea which has accidentally or purposely been associated with it, as of the person who brought it, or of the sound or word *orange name.* Any variety of simple ideas or of complex objects or motions producing complex ideas may be so observed, classed, and named. Then, further, it is found, that when any new object is met with resembling one already known, it suggests or recalls to the person that known one; and the idea ranging itself with others similar, previously known, joins a class formed in the mind, which class also may get a name. And thus language grows.—*N.-Y. Journal of Education.*

To be continued.

How to teach Children.

BY A. BERGMANN.

The teaching of the first grade has been for some time the object of my study, because I look upon it as the foundation of all our work.

In every-day life we meet with comparatively few people who can not read, and, if reading were the sole criterion of intelligence, we might unhesitatingly call this decade a very intelligent one; yet, if we examine critically the language many use to express their thoughts, or consider how they understand the ideas of others, presented to them orally or in print, in a word, how they speak and reason, we shall find ourselves under the necessity of confessing that our generation is rather behind in that beautiful and pointed laconic mode of expression, in which the Spartans of three thousand years ago excelled.

The art of reading is certainly a key by means of which we may unlock, if so inclined, the great vaults, in which ages have deposited the result of their learning and wisdom, and without any assistance but a thirst for knowledge we may attain to the position of a luminary in the galaxy of the learned.

But does the art of reading also instill unconditionally a thirst for knowledge? If so, why do the majority of our school children, who are taught it, from the very first day of their school life, entertain rather a dislike than a love for their books? And this is a fact which every teacher experiences, if she lets her pupils decide for themselves whether they will rather read a beautiful story or have the teacher relate it to them. In nine cases out of ten they will unanimously decide for the latter.

If this be admitted to be true, the very important question presents itself: Can the school be expected to conquer such dislike, and how may it be done?

I am free to answer the first part of the question in the affirmative and shall also endeavor to show how it may be done; but first let me call your attention to the phenomenon which has doubtless come under the observation of most of us.

Let us take a boy of eight coming to school for the first time, perfectly illiterate, but possessed of common

sense, who is put into your lowest class, i. e., among children of six. Do you not always find that such a child will learn to read remarkably fast and not only be, in a very short time, equal to the best of his class, but even catch up with children of his age, who have spent two years at school, when our boy enters it ? and in most cases this boy will be found superior in observation and understanding and in expressing his own thoughts.

Very few teachers, if any, will deny the above illustration to be one of every day occurence.

The cause of this cannot well be looked for in the advanced age of the boy, nor in his bodily development, for the very reason that school children of six grow older and develop also ; it cannot be said that the boy has intelligent parents, relations, etc., for such is the case with six-year-old school children too, and besides the intelligence of the teacher is often superior to that of many parents. It is then the child's absence from school which has worked so much in his favor ? Not necessarily so. But it is certainly the development of thought and speech, which the boy has experienced during the two years which others have spent at school spelling and reading.

The little six-year-old has no correct idea of the subject of which his lesson in the primer treats, while the boy of eight, just entering school, knows at once that the sentence, " It is an ox," refers to a little picture opposite, representing an ox. He knows probably something about it, and a whole chain of ideas starts in his mind, while reading this and similar sentences ; he is eager to know more about it, and learns fast to read and to spell.

Our boy was taught by nobody, he did not know a single letter, but he had used his senses, he had observed, reflected on objects, which interested him, and had spoken whenever there was something to communicate. Should our schools, perfect in many respects as they are, not be able to do more and better work than mere chance ? Most assuredly so. We can do it, if we condescend to copy after nature.

And now I shall return to the question, " How may the dislike toward books be conquered in schools ?"

Children upon entering school encounter a book with black characters, all arranged in straight lines, and now and then a black picture—it is the primer. In it they read continually the ideas of others and spell the words—for little children certainly a dreary work and it cannot be wondered at that they are glad when the recitation is over—they will naturally look upon books as their privileged tormentors

Take away these tormentors from the first grade entirely. Make the children speak. Show them objects or pictures and lead them to produce oral compositions ; tell them stories about the pictures, and make them relate them to you in return ; and verily you will see bright eyes, smiling faces, and hear intelligent words and phrases enough in your room.

Do not fear that the pet child of our schools—discipline—will suffer by this, for a soft word from a teacher, who is a source of so much joy to the little ones, works wonders in an animated class.

Change the subject frequently : take objects from nature, especially animals and living plants ; explain their mode of existence, etc. ; and thus the first grade might well be excused from a lesson in " natural science" lasting an hour.

This mode of teaching the first grade will stock the minds of the little children with a vast amount of knowledge, received directly through the senses ; it will lead them to form combinations, draw comparisons, and will under the guidance of a careful and intelligent teacher train them to express their thoughts in concise and correct language.

Combine with this, singing, arithmetic, drawing, writing and reading script, and you will have children whose mental faculties are amply prepared for the introduction of books and who will think the valuable gifts which will gratify their aroused appetites for knowledge, commanding, as they do, a goodly portion of it already.

At this stage the art of reading will not only be very readily acquired, but it will also prove to them a highly appreciated means of gaining more knowledge, and books will become and remain, what they ought to be, their friends for life. To teach the first grade in this manner is, by no means, easy work, and will require the most careful preparation on the part of the teachers. Some even might not be able at all to do it, but valuable help could be rendered to them by meetings like this one, where lectures on the subject might be given.

If the experiment should be made, and in European countries it is no more an experiment, the teachers in the upper grades would soon find a set of scholars with whom to work would be a pleasure, and those very pupils would enter life well prepared.

If my views upon the subject before us should happen to differ materially from others I beg you to regard all I have said as an opinion gleaned from careful observation and I hope it may give rise to more sound and earnest reflections, and indirectly help to benefit our common schools.—*American Journal of Education.*

Hints to Young Teachers.

In the most educational publications, as well as in teachers' conventions, associations, etc., it has seemed to me that too much was taken for granted, and consequently that the advice and instruction given frequently went over the heads of those who needed it most. There is a tendency to speak in a sneering, and contemptuous way of those raw beginners, green hands, etc., and of cheap schools, and country districts, and ignoring any claims they might be supposed to have ; to give exclusive attention to the improvement of those who have already numberless advantages. It would be a great advance, indeed, if our country schools could have such buildings, apparatus, and experienced teachers, as most of our city schools possess ; but we must take things as they are, and not as we would have them.

It is an undeniable fact, that in our land, there are thousands of schools, which either from the smalless of the numbers, or the poverty of the inhabitants, cannot afford to pay high wages, and consequently are obliged to employ inexperienced teachers ; and these young teachers, with none of the helps so easily found in the city, with no opportunity to mingle with other and more experienced teachers, are expected to instruct scholars ; of every degree of advancement from *a*, *b*, *c*, to algebra ; and at the same time keep perfect order. If they succeed they gain no glory, and if they fail it is, " Just what you might expect, if people will employ cheap teachers.

I have felt a great deal of sympathy, for those placed in such uncomfortable, as well as unfavorable positions, and have hope that to such a few words of advice on the practical working and duties of school, might be beneficial. To those who have had experience, I have nothing to say, for if they have not learned from *that*, advice is useless.

Now, my friend, I shall suppose that you are somewhere from sixteen to twenty years old, and that you have never taught school. Your school-house is not particularly attractive ; you have but a small supply of blackboards, no globes, no outline maps, none of the thousand and one things, which are like tools in a teacher's hands; but you are expected, as a discouraged pedagogue said to me one day, "to evolve everything out of your inner conciousness." You have, perhaps, a school of about twenty in prospect, of all ages, from little toddling things, sent to be out of the way, all the way up, to big burly boys a head taller than yourself, and giggling girls, who expect to study the big boys as much as anything. Your heart sinks every time that you think of next Monday, and you wonder if you can make them behave, and if you will succeed in teaching, and in doing it well.

You want the pay—I don't think anyone teaches from *pure* philanthrody—but you mean to earn it. You feel a sincere interest in the children, and you wish to benefit them mentally and morally, but you scarcely know how to do it, or what you should do first. Of course you must always depend upon your own common-sense, to apply and vary general directions to suit your peculiar circumstances.—*New England Journal of Education.*

The Pleasure of Study.

BY JOSEPH HALL.

I can wonder at nothing more than how a man can be idle, but of all others, a scholar ; in so many improvements of reason, in such sweetness of knowledge, in such variety of studies, in such importunity of thoughts. Other artisans do but practice, we still learn others run still in the same gyre to weariness, to satiety ; our choice is infinite ; other labors require recreation : our very labor recreates our sports ; we can never want either somewhat to do somewhat that we would do. How numberless are the volumes which men have written of arts, of tongues ; How endless is that volume which God hath written of the world ! wherein every creature is a letter, every day a page. Who can be weary of these ? To find wit in poetry ; in philosophy, profoundness ; in mathematics, acuteness ; in history, wonder of events ; in oratory, sweet eloquence ; in divinity, supernatural light and holy devotion ; as so many rich metals in their proper mines ; whom would it not ravish with delight ?

After all these, let us but open our eyes, we cannot look beside a lesson, in this universal book of our Maker, worth our study, worth taking out. What creature hath not his miracle ? what event doth not challenge his observation ? How many busy tongues chase away good hours in pleasant chat, and complain of the haste of night ! What ingenious mind can be soon weary of talking with learned authors, the most harmless and sweetest companions ? Let the world condemn us ; while we have these delights we cannot envy them ; we cannot wish ourselves other than we are. Besides, the way to all other contentments is troublesome ; the only recompense is in the end. But the very search of knowledge is delightsome. Study itself is our life ; from which we would not be barred for a world. How much sweeter then is the fruit of study, the consciousness of knowledge ? In comparison whereof the soul that hath once tasted it easily contemns all human comforts.

Of Arithmetic.

BY MARY P. COLBURN.

What a long word 'Arithmetic' is for such wee ones as we are dealing with ! Their little tongues can hardly roll around its crooked edges, and yet its *principles* can be developed long before they are able to speak intelligibly. Once in a while there is presented before the teacher one of "Nature's noblemen" in embryo, who has no more idea of figures and their meaning, than he has of the moon, and whose little cranium is entirely innocent of the *bump of number*, albeit it may boast of any *number of bumps* ; but generally the little man of five can bring you two, three, or a dozen of any objects you may desire. The work to be done is *the making him able to treat of abstract numbers by the figures which represent them.* This can be done in a variety of ways.

Kind Heaven be propitious and speed the day when the "Kindergarten" shall be universal, for when its pupils shall graduate into our primary grades, they shall be well versed in the smaller combinations, and thus leave more time from the tedious drill for the innumerable things which hand, heart, eye, and mind find to do in a successful school. But till that is the case, we shall have the drill to do ourselves, and the question is, "What is the best way by which to produce the best results ?"

Since the interesting auxiliaries of the "Kindergarten" are not at hand, we must *improvise* something. The little fellows who can't read can hardly stand up before you, book in hand, and recite from it; but tangible objects are the proper things : the rows of desks, the boys sitting at them ; the chairs, pictures on the walls, books on the teacher's desk, blocks, beans, sticks, eyes, noses, heads ; *any thing but fingers.* Don't let them, on any consideration, use *them*, for there is no habit harder for the teacher to break up than that of counting fingers ; *they* are ever present, and it is so easy to do it, that the child keeps at it long after there is no necessity for any help in the matter. Never allow it, but let him *see* any variety of things before him, handle them, separate them, and count them together. After this, teach him to *think* of something at home which he *cannot* see ; his blocks, marbles, tops, bobs to his kite-tail—anything you can think of ; and if your powers of imagination fail, let him help you ; ten to one he will brighten up and startle you with something you never thought of. Find out what is a favorite with some dull one, and then look into his eye when you ask him some leading question about it !

Said a teacher to a hopeful mamma in my hearing, "What kind of a boy is that of yours ? I have tried for a whole week to obtain some answer to the most simple questions in arithmetic, and have most signally failed : *he did seem dreadfully stupid*, Madam, till, by chance, I happened to say something about *horses*, and then to my complete surprise, he woke up immediately and answered every one quickly and animatedly ; and now I don't have a bit of trouble."

The poor little thoughts were a "wool-gathering," while the teacher was ignorant of his peculiar bent, but the moment she discovered the road he liked to travel in, *and was interested in*, she found no difficulty with his paces.

There is a kind of despotism about numbers, and, as the pupil advances, he must have all answers of every conceivable combination, contained in the ground principles, at his tongue's end, without stopping to calculate ; $4+3=7$; he must *know* it is 7 in an instant, without *thinking* it out. $5+4=9$; it is 9, *always*, in a second. As

soon as the question rings out, the return stroke must bring the answer.

I remember once hearing of a saintly old lady who solemnly affirmed that "*she should know a good minister if she heard him in England!*" So the boy at your side must *know* that 7+5=12, &c., wherever he hears it, short of the Mountains of the Moon!

"Subtraction" can be developed at the same time with "Addition"; thus, 7—2=5 *because* 5+2=7. 10—6=4, *because* 4+6=10, &c. If they do not see that readily,—and there are some who will be as obtuse and blind as any one-sided politician ever was!—let him take the objects at hand pencils for instance, and manipulate them for himself; here are 10 pencils, from which number he removes 2; he sees 8 remaining, and he thus knows that the two piles together make the number he started with, *i. e*, 8+2=10.

After a little practice, he will see them in his "mind's eye," as he now sees them literally. An ingenious device is to presuppose these tables or combinations on the door, the wall, the hand, or the teacher's forehead; their little eyes are looking, their little thoughts are working, and their little lips are giving correct answers, whereas, otherwise, the interest in such dry, abstract food would materially flag.

I do not think too much freedom can be given to the imagination in conjuring up devices to arrest the attention in the study of "Arithmetic." With scholars of the higher grades, the interest is in the nature of the problem presented, and a searching among its intricacies ferrets out the answer. So with our little ones; the questions we give are only problems to them, and we must direct them on the way.

I do not offer this as a "treatise on methods," but simply to show the inexperienced teacher how much depends upon herself, above books *and* methods, in the successive mastering of the principles of numbers by her young charge. I have only touched upon some few ways by which they may become interested in the study, and by which they may pleasantly fix in the memory what might otherwise prove but an unpleasant and wearisome task.—*New England Journal of Education.*

Methods of Culture.

BY J. BALDWIN.

Memory—Educational Mistakes.

Every where teachers suffer whims and precedents to determine their methods. Exploded follies are perpetuated from age to age. Monstrous absurdities are practiced and even extolled. Vicious methods hang as an incubus upon the profession. It will ever be thus till teaching is placed on the solid basis of science. Attention is here called to a few of the mistakes into which teachers, unguided by principles, are liable to fall.

I. *Crowding Memory* is one of the most baneful mistakes of the profession. This is done in three ways:

(1). Courses of study are overcrowded. We try to spread the child over the whole realm of science. A mere smattering, rather than a well defined knowledge of each branch is the result. "Be content to be ignorant of *many* things, that you may *know some* things," is one of the best things said by Dickens. Our courses of study need careful revision. Many subjects must be omitted, and the best for all purposes retained.

(2) Pupils are permitted to pursue too many studies at the same time. Five, and even six are not uncommon. More than three studies at a time is a serious mistake. Theory and experience alike demonstrate this fact. A multiplicity of studies violates the plainest laws of memory. I may here caution teachers against the opposite error, "a single study." Schools founded on this idea are based on a false theory, and are condemned by all sound educators.

(3) Memory is crowded with countless details, rendering impossible a firm, clear, comprehensive grasp of the subject. True teaching must supplant this common but inexcusable error. Pupils must be led by induction and reduction up to definitions, principles and rules; led to master the great central principles of the subject and to group around these the essentials. Particulars should be used to develop the subject, to illustrate, to apply. Results and processes need to be retained. Details are used as scaffolding, and as such thrown aside. Such teaching gives tenacious memory and the highest culture.

II. *Parrot Teaching* is a most baneful educational mistake, and is alarmingly prevalent in schools of every grade. Bright pupils, who glibly answer all questions in the language of the book, are the pride of superficial teachers and thoughtless parents. It is not strange that such pupils are seldom heard of after they leave school. They are mere human parrots, weighed down by a vicious method that prevents all true development.

True teaching gives independence. Give me the pupil that delves and delves, and who will not rest till he has grasped the *meaning*, who expresses in his own crude language his own ideas. Such plodders become the men and women who move the world. True teaching trains pupils to such habits of study and recitation. Not mere words, but thoughts are stored. Memory becomes vigorous because rationally used.

III. "*Humdrum and Fuss and Feathers*" are extreme educational mistakes. We want neither too little nor too much drive. Dull, insipid, pointless teaching, is a fearful thing. It is the worst of narcotics. It fosters poor memories and poor lessons. The fuss and feathers teacher goes to the opposite extreme. He makes a show of doing much, but in reality accomplishes little. He hurries and confuses his pupils, and thus renders good results impossible.

Avoid both mistakes. Awaken and sustain an intense interest. Manage to have pupils forget themselves and become absorbed in the subject. Give the pupil time. Train him to systematic and determined effort in remembering and solving. Stimulate him to be plucky and to conquer by an indomitable will. One recitation thus conducted is worth a score of the "humdrum" or of the "fuss and feathers" kind. Such teaching develops power to achieve. It is the kind of teaching demanded by the spirit of the age.

Footprints of the Great.

It is a fortunate thing that we have the lamp of biography to bring into view the footprints of the great men who have gone before us. Every small man need not try, of course, to stride along in the footprints of a giant. But still every one has some peculiar talents which it is his business to put out to the best advantage; every one has gifts which he ought to cultivate and employ to a great end. And from those who have preceeded him on the same path and employed similar gifts with illustrious success, he may glean much wisdom to guide his own course. If he knows not how

to encounter some small difficulty he may inquire what weapons they wielded for a like purpose, and perhaps he will wield them with a like success.

Energy is the powerful weapon which achieved victory for all great men. Whether a man is great in war, in politics, in science, literature or the fine arts, he never would have been so if he had not been a man of energy; and moreover, a man of concentrated enery.

In litterature, the ancients addicted themselves to one species of composition; the tragic poet appears not to have entered into the province of comedy, nor, as far as we know, were their historians writers of verse. They devoted their faculties to one object, just as the rays of the sun may be directed on a single point with a hundred-fold intensity through the lens of a burning glass; and to this concentration of energy is chiefly owing their general superiority over the moderns. This is the great principle of constancy in one occupation which is partly impeached in the well known maxim: "Beware of the one-book man!"

Now, who are the one-book men? I believe that they comprise many of our great names. Everyone knows how assiduously Demosthenes went on transcribing his Thucydides. Then, St. Chrysostom, who to my mind was by far the greatest orator that ever lived, spent two years in a solitary cavern, reading and meditating on the Holy Bible, so that we are told, he knew it perfectly by heart. Among a hundred more recent instances, there is that of Chatham, who studied Barrow's sermons so often as to repeat them all from memory. There is scarcely any great literary man who has not been particularly addicted to some one book. Here they established a vantage ground where they had a firm footing and a secure fortress.

Everyone, therefore, who engages in litterary composition, if not naturally drawn to choose some superior model, should learn to do so from such great examples. But he should determine for what purpose he will take up one especial book. This would be the best for its admirable style; that for its depth of thought; another for the wisdom or science it contains; and in all cases the writer chosen should be the very best of his kind. Then the mind will acquire a decided and vigorous tone—the absence of which is so commonly felt; and it will be kept from that vacancy, inertia and dissatisfaction, which are produced by the practice of desultory reading. This habit indeed will give the fulcrum on which, with the lever of his own peculiar talents, each one will be able to move the world of though.

But this one book system implies a constancy which has in it something heroic; and therein lies the energy, and therein lies the greatness of the great.

But above all is energy required in the act of composition. It is mere nonsense to say that great geniuses set down their thoughts without labour. It is true, perhaps, that there have been one or two cases where wonderful powers of mind have been united to as wonderful powers of expression, and where thoughts flowed out almost spontaneously in a torrent of eloquence. It was so with Shakspeare in modern days, and it was so with Homer in the olden time. But these instances of energy of thought and expression without effort are remarkable exceptions to the general rule. We hear very differently of the vast majority of famous writers. Take the poets: Euripides wrote one line in the hour; Ariosto wrote some stanzas descriptive of a tempest in sixteen different ways; Petrarch made fifty-four alterations in a single verse; even Byron, whose words rush along in an irresistible stream, displays very many erasures in his manuscripts. If this be the case with poets, it is even more so with other writers. To go no further back than our own time, Lord Brougham wrote one of his speeches twenty times over. Bulwer Lytton says it was with "incredible labour" that he composed his first fiction. Dr. Newman is nearly always ill after the labour of prolonged composition. Gibbon, the great historian, composed his memoir eight or nine times, and after all left it unfinished. These are but a few instances out of many.

Now, what an extraordinary amount of energy is displayed in all this labour. A weak spirit would be daunted, and give up the undertaking, or hastily throw out some crude production to meet with a similar fate to that of many a poet,

> "Whose sweet melodi us works have sunk
> To wrap up sausages, or line a trunk."

But the great writer has before his mind a grand ideal, which he labours hard to express in language commensurate to its loftiness. He strains intensely after this ideal; but all the time his labour is an enthousiasm, and though at times his mind may be wearied, it is ever borne up with the inward consciousness of power. The struggle between the mind and the idea is often long and severe; often they "wrestle as in a war-embrace," but in the end the patient energy of the manly spirit obtains the mastery, and thought becomes embodied in words.

A Journey to Grammarland.*

There was once a little boy who had a great desire to please his mother, and she was very anxious for him to learn grammar. To accomplish this, they worked together with all their zeal; but it was very hard. To learn to speak requires much time; but one accomplishes it, and with pleasure too. When we say "ossee" to the baby, showing him a horse, and he repeats it, everybody is delighted; his mother rewards him with a look and a smile full of tenderness; his father embraces, with a shout of joy, his fat and laughing form; and the little fellow vigorously brandishes his arms and his legs, in order to show that he is happy too.

That is not the way with the grammarians. Those poor gentlemen never laugh, and they have, alas! something more important to do than to kiss little children. With them it is no longer "ossee"; but we are in the presence of "horse, a common substantive, third person, masculine gender, singular number, forming its plural by addings, and whoever can't learn that is a little dunce!"

It is clear that there is no fun in that.

One beautiful summer morning, the mother and the little boy had risen very early to review carefully the page of grammar which he must recite that day. The sun, which made the dew-drops in the grass glisten like diamonds, had entered the room though a corner of the window, and seemed to invite them to come and see how beautiful it was out-of-doors. The red breasts, the tomtits, and the linnets called them with sweet songs from all the trees of the garden; and the large rose-bush which grew behind the house, agitated by the morning breeze, strock the window-panes which its bunches of flowers.

Obedient as he was, the dear child had not courage enough to resist this universal invitation. His legs, which moved about in spite of him, asked to carry him

* "Grammar according to the Macean System; or, a Journey to Grammarland." Adapted from the French, by Père et Fille.

into the garden, and his bright eyes could not do otherwise than quit the book sometimes to play with the sun amid the flowers. The mother herself stifled a sigh, and it evidently cost her a great effort to keep the poor little boy in the room, when everything called him into the open air. But she could not think of yielding to such a weakness, for the master would soon be there; and when he had put on his spectables, and assumed his imposing air, he was not a personage to be sneezed at.

"Mother," said the child, all at once, "please explain this phrase; I do not know what it means, and I am afraid I will never learn it."

He was studying the modifications of verbs, and this is the sentence which he had to commit to memory: "*Number is the form which the verb takes to express its relation with unity or plurality.*"

His mother took the book in her beautiful white hands, and her pretty eyes remained fixed with fright upon the phrase.

"Ah!" said she to herself, "I thought I used to understand the meaning of number in verbs; but now it seems to me I do not know any thing about it."

She remained immoveable, her mind plunged into a profound abyss, while her little son continued to interrogate her with his looks, with that simple confidence of children who think nothing too difficult for mother.

Just at that moment the door opened very softly, and an old friend of the house entered without knocking. He was a round, little man, with a merry, fat face, still fresh under his white hair, and with lively, blue eyes, filled at the same time with mischief and with goodness. Many tales are told about him. Often he disappeared for whole months, nobody knew where; then he suddenly reappeared, and no one dared to ask him where he had been. But is was rumored about that he was a sorcerer, and that he had at his command a magic chariot in which he could fly to countries that no one had ever seen. The little boy loved him very much, because there was no one like him to amuse children; and the mother was delighted every time she saw him, because he often aided her in her difficult task of instructing the little boy.

As soon as she saw him, she held out the book without saying a word, indicating with her finger the phrase which she found so difficult to understand. The little man had hardly looked at it, when he frowned and anger flashed from his eyes. He loved children so much that he became very angry when any one wronged them, and in those moments of rage a sometimes went so far that he actually became funny.

"Who wrote that?" cried he, pushing the book from him, as if it were something odious. "I don't know what keeps me from going right through the window to twist his neck!"

The good old man, in his exasperation, had let out his secret.

He appeared to reflect a few moments.

"Listen," said he, at last; "since anger has made me boast of what I can do, I will place at your disposal the power of which I, like a goose, have spoken. I haved just returned from a journey which has fatigued me much, and it will cost me not little to be off again so soon; but it shall not be said that I have left you any longer at the mercy of barbarians. Come with me. I will conduct you to Grammarland. It is a country where little children can amuse themselves as well as elsewhere, when they enter it in the right way."

So saying, he waved his hand. The window opened of its own accord, and the branches of the rose bush parted to let pass a chariot of mother-of-pearl, drawn by two large swans, white as snow. The little man lightly jumped into it; and, having invited the mother and little boy to a seat by his side, he set out with them through the air.

"My dear child," said he, when they had lost sight of the earth, "what we wish to teach you when we place a grammar in your hands is much more important than you now think, and I charge you to open well you eyes and ears when we arrive in Grammarland.

"When you came into the world, you could utter only groans and confused cries, similar those of animals. Those who are born deaf remain so all their lives. It is impossible to teach them to talk, because the words which we pronounce before them cannot enter their ears; and, for want of exercise, their mouths are able to produce only a sort of groaning or muttering.

"You know how to speak already, thanks to your mother, but you are still too young to understand what an immense service she has rendered you, and how much time and labor were spent by the first men in their efforts to transform into articulate language the coarse sounds which formerly came from their lips.

"Don't ask me any questions: your eyes have said enough, and I knew that I must explain the word articulate. In order to do so to your satisfaction, I must give you a short lesson in natural history.

"Touch with your finger that little ball which you have in the middle of the neck, and which is called Adam's-apple—why, I know not, though. Have you found it? Well, keep your finger on it.

"Now, open your mouth, wide, and drive the air from your chest with the least possible noise. What do you feel under your finger? Any movement?"

"Very little."

"Try again, with your mouth wide open, and imitate the cry of a baby. Don't you feel the little ball tremble under your finger this time?

"It is in that place that the sound of the voice is produced, thanks to two membranes placed in the interior of Adam's-apple, between which the air which comes from the chest passes, and which are tight or loose, according as we wish to make much noise or none at all. A chord tightly stretched gives forth a sound when struck, but none when it is loose. That is precisely the case with the membranes of Adam's apple. They are called the vocal chords, one of the prettiest names ever invented by those whose business it is to designate the innumerable parts of which our bodies are composed.

"The vocal chords exist also in animals, which, like us, have lungs, and a windpipe through which the air comes and goes. They have a voice as well as we; but it is used by them only to utter cries, because the noise goes from their mouths through nearly the same channel for each of them.

"Man has learned to break and bend his voice at the moment when the sound passes into his mouth, by disposing his lips, tongue, and teeth in a thousand ways, so that it is modified and transformed into a series of sounds very distinct from each other. Just now, when you had your mouth wide open, the sound which came from it was the same all the time, because it encountered nothing which could bend or modify it. It remained just as it was formed in the passage of the air through the vocal chords. Amuse yourself by pronouncing, very slowly, *do, re, mi, fa, si, la*; by paying attention, you easily see that your lips dispose themselves differently to pronounce those different sounds. They do that of themselves, because they are accustomed to it, like well-trained horses that promptly go of their own accord to the place which they ought to occupy; but ask your mother how much care and patience their apprenticeship has cost her.

"That is, dear child, what is called articulate language. The name articulate is given to every thing that can be bent, breaking itself, so to speak, into several parts, just like your fingers, for example, which divide themselves into three parts when you shut your hand. And now, if any one tells you, in your reading, to articulate your words well, I hope you will know what he means, and that you will take much care to profit by this great advantage which you have over animals.

"The advantage would not be so very great if it was only an affair of music is not so good as that of the little linnets in your mother's garden; but it enables us to clothe, in words easy to be known, the ideas within our heads, and to take them out to show them to others. This is of incalculable value.

"What is an idea? It is an image, or picture, in the rigorous sense of the word. That is what it signified among the Greeks, from whom it came to us.

"When you say mother, house, horse, those three words which you pronounce bring before the eyes of those who hear you three different pictures which were drawn in your head at the moment when you spoke. It is true that those pictures are sketched so rapidly that a thoughtless little boy may not see them; but by paying attention, you will soon learn to recognize them. Two men that speak together are like two children who lend each other their pictures; for it is just that which we do when we exchange our ideas, as we say.

"All our images are not of the same nature as those of which I have spoken. Those are sensible and material ideas—ideas or pictures of material objects, or things that we can see or handle, as a house, a horse. You are more fortunate than many others, dear child; you do not want for any thing. I am sure, however, that you are sometimes made to wait for your breakfast or dinner, and in those moments you have a great desire to eat. If I pronounce before you the little word hunger, which has made many unfortunate ones tremble, it will awaken in you the remembrance of what you then experienced. Hunger is not a thing whose picture we can draw, and yet this word conveys to you an idea or description of the state in which you find yourself every time you are made to wait for dinner.

"I will not undertake to explain to you now all the kinds of ideas that we express by words; we will come to that when we engage in the special study of words. It is enough for you to know that a word could not exist if it had not been created expressly to represent some idea, and that should teach you never to employ a word that does not convey some idea to you.

"But man was not satisfied with finding words with which to clothe his ideas. He studied how to catch and tame, so to speak, those words which flew away into the air as soon as spoken, and how to make them visible so as to preserve some trace of the ideas which he could not retain in his memory, and so as to converse with those who might be out of the reach of his voice.

"That means was writing, an invention almost as wonderful as that of speech: and the little boys who grumble when learning to write their letters do not know how much gratitude they owe the men of genius who invented those marvelous signs, whose combination represents to our eyes the ideas that their combined sounds represent to our ears.

"The alphabet has the appearance of something of very little importance. To make curves and straight lines, oh! how tiresome! Well, those curve and straight lines are the most powerful instruments which human intelligence has yet given us. By their aid, the labors of all men, in all ages and regions, may be kept for each one of us, and the labor of each one may be a benefit to all. If any one should write what I am saying at this moment, the little boys on the other side of the world might profit by it, provided it should please their mothers. What are our greatest writers compared to the creators of the alphabet? The former are the tiles of the roof; the latter, the stones upon which the house is founded. The first shine in the sun and live in the air, while the others lie buried in obscurity; yet it is the latter that carry all.

"Once in possession of speech and writing, man can clearly explain his ideas. He makes for himself rules, groups into distinct families the words scattered in his memory, studies the art of speaking and writing, and the reign of grammar commences—not to make little children despair, as you have imagined, but to ennoble and fortify them, by teaching them to make themselves master of their ideas in order to express them well.

"You ought to understand now, my little friend, that grammar is an important science, one which has cost much trouble to create; and the children of to-day ought to think themselves very fortunate to find it ready made for them when they come into the world. Instead of becoming impatient over the difficulties which they encounter, they ought to think of the much greater ones which those who made grammar met and conquered, and they ought to thank them with all their heart, and try to profit by their works.

"Speech is one of the principal things that distinguish men from brutes, and it is also by language, much more than by birth and fortune, that men are distinguished from each other. Whether you are poor or rich will make little difference with a well-educated man. It is by hearing you speak that he determines whether you are in his circle or not. If you wish to count for somebody in this world, it is necessary to prepare yourself now, by forming good habits of language; and the best way to form them is to go bravely to the rules which teach them, however dry and uninteresting they may appearto be.

"That is not all. In taking advantage, for your instruction, of the work and painful labors of the first men, you ought to think that there are many children who have not the good fortune, like you, of tiring themselves over grammar, and who will never know what you are learning. Grammar is as important to them as it is to you. This great benefit of a regulated language is a common heritage left by our ancestors to their descendants, and it is not right that any one should be deprived of it. Think of this when you are grown, and try to remedy the injustice of lot or condition in life. Think of this even now, when you are inclined to feel jealous of the little boys who run in the street, while you are kept in the house studying your grammar. They ought to be jealous of you, for you have your part of the great inheritance, and they are losing theirs. Study your grammar with diligence, and try to invest it with a lively interest. It teaches the right use of languages. It teaches us to speak and write correctly; to think and reason correctly. All success in the higher and nobler walks of life is largely dependent upon that knowledge which the study of grammar gives us. As it teaches purity of speech, it leads to purity of thought, of heart, of action, of life. Remember that

'Words lead to things; a scale is more precise:
Coarse speech, bad grammar, drinking, gambling, vice.'

"He who is refined in speech is more apt to be refined in heart and in life than the man of coarse language. The study of grammar is, then, an important element in securing enlightenment, refinement, and purity of life."—*National Teachers' Monthly*.

John M. Richardson.

School Teachers' Association.

The second quarterly meeting of the members of the Protestant School Teachers' Association was held last evening, Prof. McGregor in the chair. M. Weir opened the proceedings with prayer.

The Secretary read the minutes of the previous meeting, and also the minutes of the Council held the same evening.

On motion of Mr. Hicks, M. A., seconded by Miss Clarke, Mr. R. Weir was appointed Treasurer *pro tem.*

Principal Hicks made a few remarks on the art of teaching composition, a subject treated in a paper read at the previous meeting by Mr. F. W. Hicks ; he dwelt upon its importance in cultivating correct habits of thought, and mentioned that teachers generally neglected teaching composition as an unpleasant, task, one reason for display in public ; again, children disliked it, as they could not perceive their progress ; further, and a very great reason,—it gave a large amount of trouble to the teacher ; and in fact, it was quite certain that it would be an instrument of great benefit, which would lead in their schools to the acquirement of sound education.

Prof. Mills, of the Normal School, remarked that English-speaking people were not generally gifted with facile expression of their thoughts, and held that great writers were at present somewhat ravenous readers. He ascribed neglect of composition to lack of thoughts, and was of opinion that when a pupil had no real thoughts to write, it was useless to bore him with the trouble of preparing a composition. The power of observation should be cultivated : and the study of the meaning of new words was profitable by widening the range of vocabulary.

Prof. McGregor observed that the choice of a proper item was a highly important matter ; at the time of that event he had selected means of meeting the Fenian invasion, and the results had been so satisfactory as to surprise and please him, the topic being one in which the pupils were thoroughly interested.

Principal Hicks—With regard to the subject, mistakes in teaching, stated as great injury was froquently done through want of experience on the part of the teacher, the importance of careful preparation of the work was evident. One of the most serious mistakes for any person in life was to place oneself in a position for which one was not fitted by nature ; this mistake was not rarely committed by people who adopted the teachers' profession. The teacher should possess—first a love of children, and secondly, a decided liking for a teacher's occupation, and thus fortified, he had some chance of battling successfully with the trials well known to all present. No one should become a teacher until he had carefully counted the cost, and one of the most common mistakes made was to look for immediate results in the work of education. He (Mr. H.) had committed the error when he took charge of his first school, which was in a very disorganized condition. The teacher, further, should not be of the kind who considered teaching as an unpleasant task. Another, and a very serious mistake, consisted in the given of special attention to a few scholars, because they exhibited that peculiar aptitude which a teacher was always pleased to find amongst the scholars placed under his care, or such attention to the most advanced, and therefore the likeliest to attract attention. Another, and a frequent mistake lay in the giving of too much attention to the teaching of a subject for which the teacher might have a liking, and to which he might have devoted a large amount of his own time, because he felt pleasure in so doing. Many young instructors undervalued the subjects of primary importance because they were elementary, and they imagined that they were promoting the benefit of their pupils when they taught something of which they had heard as an advanced branch of knowledge, without considering its fitness for the young. One would choose mathematics ; another, a scientific enquiry of another nature, &c , while others hit upon grammatical construction, a hobby which they rode to death. Teachers often neglected the great truth, that all children were not alike in natural capacity, though every person, ordinarily speaking, must be aware of this fact. In this connection also came the habit, because a teacher was well acquainted with his subject, of going into the class room without preparation ; this was a very fatal as well as a common error ; preparation of every lesson was essentially necessary. Instruction was again, at times, given in such a way as to leave no chance for individual exertion, as far as pupils were concerned ; he was well aware of the advantages of education as received from the present mode of teaching as compared with the dead system which prevailed in all schools years ago ; the evils were sufficiently obvious and first, the weakening of the system, removing from the young the opportunities of ascertaining to what extent they might be able to rely upon their own exertions in pursuing their education in future life ; and another, the increase of a teacher's labor, as he would become so accustomed to constant repetition and explanation that he imagined that nothing could be done without his assistance. (Applause.)

Mr. Humphrey, the Secretary, in the course of the desultory debate which followed, favored whipping in schools.

Miss Cunningham sang, "I sent a letter to my love," loudly applauded.

Mr. Weir read a paper on the tendencies of the profession ; and Miss Rexford gave an amusing selection anent donation parties, and the proceedings closed at 10.30 o'clock.

McGill University.

The Corporation of McGill University have pleasure in acknowledging the following donations to the Faculty of Arts, during the quarter ending January 26th, 1876 :—

TO THE LIBRARY :

From the Government of the Dominion of Canada—Statutes of Canada, 1875, English and French, 2 vols., 8vo. ; Sessional papers, No. 2 to vol. VIII, 8vo.

From the Government of the Province of Quebec—Journals of the Legislative Assembly, sessions of 1874 75, 8vo

From W. C. Harris, Esq.—Sketch of the Geology of Moray, 8vo.

From W. G. Beers, Esq.—Examination Papers of the Royal College of Surgeons of England, 19 pam., 8vo.

From Principal Dawson, L.L.D.—The Dawn of Life. 8vo.

From S. S Laws, Esq , M.D.—A Thesis on the Dual Constitution of Man, or Neuro Psychology. Pam., 8vo.

From Dr. Wells Williams—King Pao, or Peking Gazette, Sept 18, 1875. One copy.

From the Boston Society of Natural History.—Proceedings, vol 17th 8vo. Do. Occasional Papers, No. 11 8 o. paper.

From the Secretary of War, Government of Washington.—Annual report for the Fiscal year ending June 30, 1875.

From the Smithsonian Institution—Annual Report of the Regents for 1874, 8vo

From the Institution of Civil Engineers, London, Eng.—Minutes of proceedings, vols. 41 and 42, 8vo.

From the University of Aberdeen, Scotland—Catalogue of the library of the University of Aberdeen, 3 vols., roy., 8vo. ; Aberdeen University calendar for the year 1875-76, ½ bd., 8vo.

From the McGill College Book Club—97 vols , comprising recent publications on various subjects.

From the Geological Survey of Pennsylvania—Report of progress for 1874-75, 3 pam., 8vo.

TO THE MUSEUM :

From W. C. Harris, Esq.—Specimens *Orthoceras* and *Calymene*, Utica Shales.

From A R. C. Selwyn, F.R S.—Specimens of Garnet, from Stickeen R., British Columbia, and Indian Pottery from British Columbia

From William MacCulloch, Esq., Montreal.—Collection of shells and Crustaceans from the South Pacific.

From J W. Spencer, Esq., Ba. App. Sci.—Specimen of *Dictyonema*, from Hamilton, Ont.

From W. J. Morris, Esq., Perth.—Specimens of Eozoon, from Burgess, Ont.

POETRY.

The Glory of God in Creation.

Thou art, O God, the life and light
 Of all this wondrous world we see ;
Its glow by day, its smile by night,
 Are but reflections caught from thee !
Where'r we turn thy glories shine,
And all things fair and bright are thine.

When day with farewell beam delays,
  Among the opening clouds of even,
And we can almost think we gaze
  Through golden vistas into Heaven ;
Those hues that mark the sun's decline,
So soft, so radiant, Lord, are thine.

When night, with wings of stormy gloom,
  O'ershadows all the earth and skies,
Like some dark beauteous bird, whose plume
  Is sparkling with a thousand dyes ;
That sacred gloom, those fires divine,
So grand, so countless, Lord, are thine.

When youthful Spring around us breathes,
  Thy spirit warms her fragrant sigh ;
And every flower the Summer wreathes,
  Is born beneath that kindling eye ;
Where'er we turn, thy glories shine,
And all things fair and bright are thine.

Aspiration.

Have we not all, amid life's petty strife,
Some pure ideal of a nobler life
That once seemed possible? Did we not hear
The fluttering of its wing, and feel it near,
And just within our reach? It was? And yet
We lost it in this daily jar and fret,
And now live idle in a vague regret ;
But still our place is kept, and it will wait
Ready for us to fill it, soon or late.

No star is ever lost we once have seen ;
We always may be what we might have been.
The good, though only *thought*, is life and breath :
God's life can always be redeemed from death,
And evil in its nature is decay,
And any hour may blot it all away ;
The hopes that, lost, in the far distance seem
May be the truer life, and *this* the dream.

Endurance.

How much the heart may bear, and yet not break !
  How much the flesh may suffer and not die ?
I question much if any pain or ache
  Of soul or body brings our end more nigh ;
Death chooses his own time ; till that is worn
    All evils can be borne.

We shrink and shudder at the surgeon's knife,
  Each nerve recoilling from the cruel steel,
Whose edge seems searching for the quivering life ;
  Yet to our sense the bitter pangs reveal
That still although the trembling flesh be torn,
    This also can be borne.

We see a sorrow rising in our way,
  And try to flee from the approaching ill ;
We seek some small escape ; we weep and pray ;
  But when the blow doth fall, our hearts are still ;
Not that the pain is of its sharpness shorn,
    But yet it can be borne.

We wind our life about another life ;
  We hold it closer, dearer than our own ;
Anon it faints and falls in deadly strife,
  Leaving us sad, stunned, sickened and alone.
But ah ! we do not die with those we mourn ;
    This also can be borne.

Behold, we live through all things—famine, thirst,
  Bereavement, pain ; all grief and misery,
All woe and misery ; life inflicts its worst
  On soul and body—but we cannot die ;
Though we be sick and tired, and faint and worn,
    Lo ! all things can be borne

What is Life ?

A little crib beside the bed,
A little face above the spread,
A little frock behind the door,
A little shoe upon the floor.

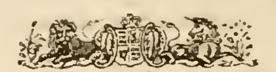
A little lad with dark brown hair,
A little blue-eyed face and fair,
A little lane that leads to school,
A little pencil, slate and rule.

A little blithesome, winsome maid,
A little hand within is laid ;
A little cottage, acres four,
A little old-time household store.

A little family gathered round ;
A little turf-heaped, tear-dewed mound ;
A little added to his soil ;
A little rest from hardest toil.

A little silver in his hair,
A little stool, and easy chair ;
A little night of earth lit gloom ;
A little *cortége* to the tomb.

OFFICIAL NOTICES



APPOINTMENTS.

PROVINCIAL SECRETARY'S OFFICE.

Quebec, 1st February, 1876.

His Excellency the Lieutenant Governor has been pleased by order in Council dated the 2th January last, to appoint the Honorable Gédéon Ouimet, Q. C, Superintendent of Public Instruction for the Province of Quebec.

Ministry of Public Instruction.

SCHOOLS COMMISSIONERS AND TRUSTEES.

Quebec, 2nd February, 1876.

The Lieutenant Governor has been pleased, by order in council, dated the twenty eight January, and in virtue of the powers conferred on him by the 48th and 136th clauses of the consolidated statutes of Lower Canada, make the following appointments of Schools Commissioners and School Trustees, to wit:

SCHOOLS COMMISSIONERS.

County of Bellechasse, Saint Lazare.—Mr. F. X. Lemieux, *vice* Mr. Louis Goulet.

County of Berthier, Saint Michel des Saints.—Mr. Théodule Migneron, *vice* Mr. Thadée Miville Déchêne.

County of Compton, Clifton East.—Mr. Frederick Williams, *vice* Mr. William reed.

County of Gaspé, Baie sud.—Mr. Joseph Eden, senior, *vice* Mr. William Reed.

County of Gaspé, Baie Sud.—Mr. Joseph Eden, senior, *vice* Revd. J. P. Richmond.

County of Gaspé, Anse of Valeau.—Mr. François Desjardins, *vice* himself.

County of Hochelaga, Village Delisle.—Mr. Hubert Morin. *vice* Revd F. L. T. Adam.

County of Megantic, Nelson.—Mr. Robert Smith, *vice* Mr. John Bain.

County of Maskinongé, Saint Didace.—Mr. Alexis Trappier, *vice* Mr. Joseph Allard.

County of Ottawa, Sainte Cécile de Mashan.—Mr. George Vaillant, *vice* Mr. Elia Rosette.

County of Stanstead, Barford.—MM. Moses P. Haw and Eugène Ross, *vice* Messrs. Moses Drew and William Wright.

County of Vaudreuil, Sainte Marthe.—Mr. Antoine Meloche, *vice* Mr. Théodule Desjardins.

County of Gaspé, Rivière à Marte.—Messrs. Louis Roy, Isaac Gaze Joseph Gaze, William Mellowney and Jean Baptiste Morin

SCHOOL TRUSTEES.

County of Gaspé. Percé.—Mr. Thomas Kane, *vice* Mr. Thomas Mahon.

MUNICIPALITY LIMITS.

The Lieutenant-Governor has been pleased, by order in council, dated the twenty eight January, 1876, and in virtue of the powers conferred on him by 38th clause of chapter 15 of the consolidated statutes of Lower Canada, to make the following changes in the limits of school municipalities, to wit:

Village of Saint Jerome, county of Terrebonne.—To assign to it for school purposes the same limits as those given to it for municipal purposes by the 34th Victoria, chapter 34.

Les Crans, county of Montmorency.—To detach from the municipality of Saint Anne the three small concessions known as "Les Crans," and to erect them into a distinct school municipality under the name of the "Municipalité des Crans."

Also, by another order in council dated the first of February, in virtue of the powers conferred on them by chapter 15th of the consolidated statutes of Lower Canada, the Lieutenant Governor has been pleased to make the following alternation to wit:

To annex the St. Maurice Forges Station to the municipality of St. Etienne, in the County of St. Maurice.

The Report of the Chaplain of Newgate on Education and Crime.

(*Standard*, Jan. 5.)

The report of the experienced Ordinary of Newgate, disparaging the value of purely secular education as a check on crime, will be regarded with some surprise by that large number of intelligent persons who are wont to take received theories, and especially current interpretations of ascertained statistics, for granted, without bringing their own minds to bear on the subject. It is a common-place among the advocates of education that a knowledge of reading and writing tends to discourage theft and make men outwardly if not in heart honest; and scarcely any of them have ever cared to consider that the idea is so monstrous in itself, there being no sort of traceable connection between the supposed cause and effect, that it should not be accepted without the closest scrutiny of the figures which profess to prove it. We grant that the majority of criminals are illiterate. This is the case in America as well as here; but in America there is another fact made equally apparent by published statistics which serves to explain the phenomenon, and might have put English observers on their guard against rash inferences. The illiterates of America are chiefly negroes and foreigners; and these also form a disproportionately large element in the criminal class....

The instructed savage is so much more dangerous an enemy than the utterly ignorant and brutal one that we may well doubt whether the total effect of secular education upon the anti-social class would not do society more harm than good. The habitual criminals might be fewer; but they would be more clever, more powerful, more capable of united action. It is their dull brutalism, and especially their utter incapacity of union, which has hitherto rendered them so weak. Were the scoundrelism of London to be combined under the leadership of a few clever chiefs—as it probably would be if the scoundrels were educated to appreciate the value of discipline and union—it would be too strong for the existing repressive power of society; it could overpower the police and resist the troops, it could plunder the town and levy blackmail on all whose lives and dwellings it spared; it could only be crushed after street fights as desperate as Paris has ever seen, and would for years afterwards be able to render the streets unsafe by night and compel us to keep up twenty times our actual police force. Such, all men who have studied the facts admit, would be the effect of combination among the dangerous or anti-social classes of London; and if secular education reclaimed a portion of them, it would give to the rest precisely this power of combination which as yet they pre-eminently lack. We cannot therefore afford to educate them unless we educate them in sound morals. And we can find no basis, we can offer no motive for sound morality except a religious one. The utilitarian theory has no value except for well-disposed citizens; the greatest happiness of the greatest number has no weight with the hereditary enemies of society. You can teach even the children of criminals and vagabonds to do right and love justice for the sake of those who loved and suffered for them, or in deference to the power of One who can punish crime more surely and severely than any earthly judge; but you cannot teach them to be good and honest, to suffer hardship and work hard, forego pleasure and resist temptation, because it is for the common interest, or even for their own remote interest, that they should do so. They prefer present and selfish enjoyment; and why should they not? How many of their betters deliberately sacrifice their own health and the happiness of their families to immediate indulgence? How expect the educated child of the degraded classes to be nobler, wiser, manlier than the educated children of cultivated parents; or to refrain from seeking wealth and sensual gratifications where education has made him clever enough to discern ways of doing this without incurring immediate punishment?

This is not the aspect of the question on which the Ordinary chiefly dwells, but his argument forcibly confirms it. There is a large class of educated men who are practically what secular education profess to make the children of the lower orders—instructed but infidel, familiar with all the principles and rules of morality, but indifferent to the motives supplied by religion. In larger and larger numbers the less lucky or less clever of this class are finding their way to our prisons. They are not criminals by profession—in the present state of things they see that this would not answer; but they are not scrupulous in their daily dealings. The generally avoid actual theft and fraud punishable by law, but they are so accustomed to dishonest tricks not so punishable that a strong temptation, or a chance of great gain with small risk of detection, induces them to overstep the frontier. There are organised frauds carried on a scale which argues the existence of widespread depravity among clerks, shopmen, and servants; there are traders who live by inducing these people to cheat their employers; to sell goods at a low price which may not be missed; to give them a dishonest preference in dealings; to run up accounts in their employer's names on which they are allowed a commission; all these villanies go on on a large scale; and men connected with them are allowed to retain the commercial and social position of honest traders. In far higher ranks frauds not less infamous in

themselves, and infinitely more atrocious in their magnitude and the ruin they inflict, are committed by wealthy financiers in league with the Ministers of bankrupt States or the promoters of swindling companies; and even when the frauds are detected those concerned with them are not refused credit or business by the honest merchants of the city, are not excluded from the society of men who claim to be honourable gentlemen and even devout Christians. This has been the result of the education and enlightenment of the nineteenth century—an education and enlightenment eminently secular. And if such widespread demoralisation has been the result of the highest secular instruction—if such is the fruit of the deepest secular culture—what moral influence can we expect the rudest and simplest apparatus of the same cultivation to effect in the most stubborn and unfavourable soil? The *Goliath* and the *Warspite* have shown what religious education can do for the worst material; Mr. Jones's report tells us what secular culture can do for the most promising.

Time and Time-tellers.

THE "OLD" AND "NEW STYLES" OF DATES.

In a little volume with the title, "Time and Time-tellers," just published by Robert Hardwicke, of Piccadilly, London, Mr. James W Benson gives us a store of information, not only as to the constitution and manufacture of a modern watch, but as to the history of watches and clocks in general, and of those "time-tellers," more or less artifical, which have been used from the dawn of civilization, and, indeed, the various modes and plans which have been adopted by the Babylonians and other primitive nations for the reckoning of time. In fact, it is an encyclopædia of knowledge on the subject of Time, and of the contrivances by wh c ı t ı· human race have "kept their eye" upon his movements. If it is not in the strictest sense a scientific treatise at all events it may claim the merit of bei g a well w itten popular account of a subject which is, or ought to be, of int rest to all.

The work very naturally divides itself into two parts, the former, histor cal and strictly retrospect v : the latter, explanatory of the mechanism of modern watches and clocks. We w ll not accompany Mr. Benson into any of his remarks about the flight of time, its beginning and its end, since these touch on questions about which it is useless to speculate; but w· cannot omit to direct atten ion to his account of the rise of horology, and the earliest conventional divisions and modes of computation of time To his account of these, however, he might have a ded the primitive plan mentioned by Herodotus, of cutting notches in sticks day by day during distant voyages, and the habit of counting by fives to which both Homer and Æschylus allude. But there is to be found in Mr. Benson's pages much that will be new even to the well-informed reader. Thus, with regard to the d fference of the English and American day from that of other nations, he reminds us that while with us the new day commences at or from twelve at night, the Jews, the Greeks, and the Italians reckon from sunset to sunset, and the Persians from sunrise to sunrise. But still even among us there is another computation for the astronomical and nautical day, which counts from noon to noon, and is reckoned as consisting of 24 ho rs, and not of twice twelve. In respect of the days of the week, of the lunar and solar month, of the old legal year (commencing from March 25), of Leap year, of the "Old Style" still kept up in Russia, and of the new, or "Gregorian Style" introduced into England and America little more than a century ago,—some of Mr. Benson's historical allusions are worth noting;—for instance, where he mentions the dislike with which the English, in George II.'s reign, viewed the introduction of the Gregorian style:—

"The earth's revolution round the sun being made in 11 minutes and 11 seconds less than 365¼ days, which minutes in the course of 16 centuries required to be take ı into consideration, Pope Gregory XIII., in A. D. 1582, to k off ten days by making the 5th October the 15th The Gregorian time, however, was not introduced into England till 1752, when the error amounted to about 11 days; so 11 days were subtracted from the current year, which was thus made to contain only 354 days, much to the indignation of the illiterate people of that time, who clamored loudly, and assembled in great mobs to testify to their sense of the great injury inflicted upon them, crying, 'Give us back our 11 days.' One of Hogarth's prints of 'The Election' exhibits a paper containing this very inscription. The fury of the populace at being robbed of its precious time availed not; the day after the 2nd September, 1752, was made (by act of Parliament) the 14th of September, and from that time dated the "New Style," since which the year has been almost exactly correct.

MISCELLANY.

Good Advice for the Young.—Avoid all boastings and exaggerations, backbiting, abuse, and evil speaking; slang phrases and oaths in conversation; depreciate no man's qualities, and accept hospitalities of the humblest kind in a hearty and appreciative manner; avoid giving offence, and if you do offend, have the manliness to apologize; infuse as much elegance as possible into your thoughts as well as your actions; and, as you avoid vulgarities you will increase the enjoyment of life, and grow in the respect of others

—*Blunders in Behavior Corrected.*

—This sample of the poetry of science gives us the offspring of a chemical wedding:

Messrs. Water and Oil
One day had a broil,
As down in the glass they were dropping.
And would not unite,
But continued to fight,
Without any prospect of stopping.

Mr. Pearlash o'erheard,
And quick as a word,
He jumped in the midst of the clashing;
When all three agreed,
And united with speed,
And Soap came out ready for washing.

Trifles.—The world is made up of trifles. The grand movements of great events, and the changes of Empires, are founded in causes, very generally, which would be pronounced trifles by the world. Yes, "trifles light as air" have led to some of the most important discoveries we have. The fall of an apple gave Newton the clue to gravitation; the rising up of the lid of a tea-kettle gave us our railroads, steamboats, ocean steamers, and a thousand other things, not to speak of the press—that, combined, put the world centuries ahead in the mysteries of the universe and the purposes of God To the observation of a flower dimly pictured on a stone, we owe the philosophical researches in chemistry and light which ultimately gave us the daguerreotype.

Truth.—How beautiful is truth! In this world, where there is so much falsehood and deceit, whereby hearts are estranged, and recriminations, assaults and crimes engendered—how beautiful are the true thought, word and deed. Like the sun smiling out amid the angry storm—like the bright stars shining through the heavy night cloud—like friend clasping the hand of friend—like right rebutting wrong—like the lance of virtue ringing on the shield of vice—like heaven upon earth, and God in man, is Truth! Precious and Priceless. Dearer than smile of friend, love of parent, or pomp or fame. Truth is all. By this we know the nature and value of things—Falsehood is a craven, a dastard. Truth is bold, noble, and God-given, beyond every other attribute of the soul.—*Hall.*

Literature for the Young.—The question of engaging the attention of the young, in favor of good literature is, every way, a most difficult one—it has, at times, quite a hopeless look about it—at all events, we cannot bring ourselves to deal in the customary common places about it. Every body is ready with a 'What is wanted in this'—and yet, goodness only knows what is wanted. We should be very sorry to see English editors adopt the tricks that are common in America—such as publishing photographs and memoirs of little boys at school who win

prizes, thus puffing the schools and turning a penny in that line, as well as doing something to spoil the poor boys. We are not aware that they have yet got so far as publishing photographs of school-girls; but it is likely enough, for they freely publish the love affairs—most fantastically conducted—of boys and girls of fourteen, and those with illustrations. It must be remembered too, by those who think that the 'education' of the masses will make an immense difference in this matters, that the public addressed by these transatlantic periodicals is better read and more 'respectable' than the public who would take in similar periodicals over here Yet it is not to be supposed that publishers, who think they see their way to much better things, who have large experience, and who have counted their resources, will stay their hands for any of the dismally discursive considerations suggested by what we have seen.

For myself, I think the food of bad literature could be very materially checked by any competent publisher taking a common-sense view of the subject and working it out with the help of strong faith in human nature and in the general progress of society. Some things are clear, and admitted on all hands. Literature for boys and girls, as distinguished from children, must be forward-looking, and full of spirit and enterprise, and quick with the warm blood of youth It must be full of incident and picture, its *motif* must be will and feeling rather than ideas. It must not be goody goody, and it certainly must not be prudish. Perfectly pure and modest, of course it must be, must it must be gay and fresh. And the spirit of Divine obligation and human service must be everywhere present, though nowhere obtruded. When these conditions are unit d in litterature, for growing boys and girls, and when really high class talent is brought to bear upon the production of such litterature, a better state of things will have been begun. Much harm has undoubtedly been done by the diffusion of a false light, but this cannot be undone by excluding the people from all prospect of amelioration in their current litterature Never, never! The people, young as well as old, will be sure to read something; they will read what is offered to them The incitements to an inappeasable mental restlessness are come into the world. The powers that awaken and foster the spirit of curiosity are to be found in every village; magazines are in every cottage and hovel. The infant's cries are hushed with picture leaves, and the cottager's boy sheds his first bitter tears over pages which go to mould his character for life.

—*Contemporary Review.*

Synopsis of Rain and Snow fall for 1875

MCGILL COLLEGE OBSERVATORY.

MONTH.	Inches of rain.	No. of days rain.	Inches of snow.	No. of days snow.	No. of days on which rain and snow fell.
January	....	....	35.0	19	....
February	0.42	3	12.9	12	1
March	0.80	2	14.6	18	2
April	1.18	6	7.3	3	2
May	5.13	16	....	....	....
June	3.26	12	....	....	....
July	3.64	14	....	....	....
August	2.59	14	....	....	....
September	5.18	15	s	1	1
October	4.74	20	s	1	1
November	0.50	2	21.7	16	2
December	0.68	8	24.2	18	3

Total rainfall during year was 28.12 inches.
Total snowfall during year was 115.7 inches.
Total rain and melted snow was 39.69 inches.
Total number of days on which rain fell, 112.
Total number of days on which snow fell, 88.
Total number of days on which rain and snow fell, 12.
Total number of days on which rain or snow fell, 188.

Meteorological Abstract for the year 1875.

MONTHLY MEANS DERIVED FROM TRI-HOURLY OBSERVATIONS TAKEN AT M'GILL COLLEGE OBSERVATORY.—HEIGHT ABOVE SEA LEVEL 187 FEET

Month.	THERMOMETER.				*BAROMETER.				Mean pressure of vapor.†	Mean relative humidity.‡	WIND.		Sky clouded per cent.	Rain and snow melted.°	Month.
	Mean.	Max.	Min.	Range.	Mean.	§Max.	§Min.	Range.			General Direction.	Mean velocity in mis per hour.			
January	5.44	29.5	—13.2	42.7	30.1521	30.656	29.438	1.218	.0510	80.9	W	14.7	57	3.50	January
February	9.02	43.4	—24.0	67.4	29.9592	30.601	29.303	1.298	.0660	78.5	W	17.1	56	1.71	February
March	21.61	41.0	—10.0	51.3	30.0593	30.491	29.510	0.981	.0989	76.5	N	13.3	57	2.26	March
April	35.70	61.3	11.4	49.9	29.9336	30.520	29.348	1.172	.1430	66.8	N W	12.8	59	1.91	April
May	53.11	82.2	30.0	52.2	29.9043	30.320	29.322	0.998	.2880	69.4	N W	10.1	57	5.13	May
June	64.58	84.4	39.8	44.6	29.9283	30.294	29.519	0.775	.4448	72.0	S W	9.5	48	3.26	June
July	67.83	80.2	49.8	30.4	29.9034	30.277	29.618	0.659	.5123	75.5	S W	11.2	43	3.64	July
August	68.67	87.0	51.0	36.0	29.9967	30.394	29.718	0.676	.5411	77.0	W	5.6	48	2.59	August
September	55.19	86.8	34.1	52.7	29.9660	30.400	29.467	0.933	.3487	76.0	W	11.7	61	5.18	September
October	40.88	58.0	26.9	31.1	29.9671	30.408	29.404	1.004	.2108	80.5	W	11.3	69	4.74	October
November	26.12	41.0	—17.9	58.9	30.0282	30.688	29.365	1.333	.1189	80.1	W	13.8	69	2.67	November
December	16.73	54.0	—22.2	76.5	29.9446	30.682	28.952	1.730	.0957	83.9	W S W	12.2	74	3.10	December
Mean	38.657	62.40	12.92	49.48	29.97832	....	....	1.0639	.2429	76.42		11.94	58.4	3.307	Mean

*Barometer readings reduced to sea level and to temperature of 32° Farenheit. †Pressure of vapor in inch of mercury. ‡Humidity relative saturation being 100. §Observed. °10 inches of snow is taken as equal to 1 inch of water. Greatest heat was 87.0, on the 29th of August; greatest cold 24.0, on February 8th, giving a range of temperature for the year of 111.0 degrees. Greatest range of the thermometer in one month was 76.5, in December. Greatest barometer 30.688 on November 22nd lowest was 28.952, on December 13th; range for year 1.736 inches. Least relative humidity was 34, on the 11th of April. Rain fell on 112 days. Snow fell on 88 days. Rain or snow fell on 188 days. Total fall of rain 28.12 inches. Total fall of snow 115.7 inches. Total precipitation in inches water 39.69 inches.

ABSTRACT FOR THE MONTH OF JANUARY, 1876.

OF TRI-HOURLY METEOROLOGICAL OBSERVATIONS TAKEN AT McGILL COLLEGE OBSERVATORY. HEIGHT ABOVE SEA LEVEL, 187 FEET.

Day.	Thermometer.				* Barometer.				† Mean Pressure of Vapour.	‡ Mean Relative Humidity.	Wind.		Sky Clouded in Tenths			* Rain and Snow Melted.	Day.
	Mean.	Max.	Min.	Range.	Mean.	‡ Max.	‡ Min.	Range.			General direction	Mean Velocity in M. p. hour.	Mean.	Max.	Min.		
1	40.81	54.0	33.5	20.5	30.0659	30.154	29.865	.289	.2196	84.1	N. E.	11.2	8.9	10	5	0.02	1
Sunday 2		53.3	31.7	21.6							S.	20.0					2 Sunday
3	33.35	37.5	25.0	12.5	29.8937	29.979	29.771	.208	.1305	68.0	W.	19.1	3.9	10	0	0.01	3
4	8.46	25.7	4.5	21.2	30.4384	30.624	30.091	.533	.0444	68.7	N. W	19.0	0.5	2	0		4
5	6.14	11.0	0.6	10.4	30.2929	30.644	29.935	.709	.0481	93.6	N. E.	9.6	7.8	10	0	0.25	5
6	13.49	17.2	9.0	8.2	30.0860	30.332	29.873	.459	.0697	86.7	N. E.	8.2	10.0	10	10	0.28	6
7	10.16	12.8	5.5	7.3	30.2892	30.354	30.222	.133	.0555	79.9	E.	4.4	9.5	10	6	Inapp.	7
8	17.29	20.2	10.2	10.0	29.9734	30.200	29.665	.535	.0876	91.1	E.	5.6	10.0	10	10	0.23	8
Sunday 9		25.6	19.2	6.4							N. E.	4.7				0.34	9 Sunday
10	24.57	42.2	3.6	38,6	29.4082	29.746	29.144	.602	.1065	71.1	W.	26.2	9.9	10	9	0.46	10
11	2.35	7.8	—5.3	13.1	29.8812	29.928	29.814	.114	.0314	65.1	W.	26.7	2.6	10	0		11
12	0.15	5.5	—3.2	8.7	29.9316	79.082	29.863	.199	.0290	68.7	W.	20.0	0.7	2	0		12
13	—1.90	3.2	—6.5	9.7	30.2550	30.315	30.130	.185	.0290	73.0	W.	18.8	4.5	10	0		13
14	12.12	21.2	—4.1	25.3	30.1402	30.298	30.035	.268	.0680	83.2	S. W.	13.6	8.7	10	0	0.07	14
15	16.04	26.8	9.0	17 8	30.1077	30.246	29.744	.502	.0777	83.2	S. W.	9.0	6.7	10	0	0.20	15
Sunday 16		30.6	17.1	13.5							N.	14.0				0.13	16 Sunday
17	20.76	33.2	12.5	20.7	29.9871	30.150	29.878	.272	.1024	89.5		10.9	10.0	10	10	0.16	17
18	37.15	40.3	32.2	8.1	29 6805	29.897	29.314	.583	.2017	92.0	S.	14.0	10.0	10	10	0.93	18
19	41.90	46.8	36.5	10.3	29.4002	29.481	29.328	.153	.2330	87.0	S. W.	20.5	10.0	10	10	0.19	19
20	25.14	46 6	16.1	30.5	29.7562	30.037	29.356	.671	.1024	73.0	W.	24.6	5.6	10	0		20
21	9.17	19.0	1.4	17.6	30.3477	30.601	30.037	.564	.0488	72.1	N. W.	14.5	4.9	10	0	0.06	21
22	4.09	8.0	—3.4	11.4	30.5974	30.763	30.393	.370	.0369	69.5		8.2	6.0	10	0		22
Sunday 23		19.8	1.8	18.0								13.0				0.55	23 Sunday
24	11.97	17.8	6.2	11.6	30.2095	30.310	30.084	.226	.0511	67.7	N. W.	12.2	6.9	10	0		24
25	8.84	12.1	6.2	5.9	30.0516	30.294	29.773	.521	.0536	82.9	N. E.	6.5	10.0	10	10	0.22	25
26	8.02	14.7	3.0	11.7	30.1281	30.228	29.887	.341	.0459	74.0	W.	13.7	1.0	4	0		26
27	24.05	33.0	4.8	28.2	29.7788	30.028	29.560	.468	.1227	89.1	S. W.	17.0	9.7	10	8	0.15	27
28	31.20	34.6	20.0	6.6	30.0080	30.140	29.731	.409	.1587	90.4	S.	5.6	10.0	10	10	0.20	28
29	34.65	45.8	12.7	33.1	29.5697	30.021	29.388	.633	.1726	78.7	S. W.	29.3	6.9	10	0	0.16	29
Sunday 30		12.0	—4.5	16.5							W.	14.3					30 Sunday
31	20.97	30.9	5.4	25.5	30.2048	30.346	30.104	.242	.0779	66.9	S.	14.7	2.2	6	0		31
Means......	17.73	26.10	9.96	16.14	30.0186			.917	.0925	78.43		14.53	6.80				

* Barometer readings reduced to sea-level and temperature of 32° Fahr. † Pressure of vapor in inches mercury. ‡ Humidity relative saturation, 100. Observed. Ten inches of snow is taken as esqual to one inch of water.

Mean temperature of month, 17,73. Mean of maxima and minima temperature, 18.03. Greatest heat was 54.0 on the 1st; greatest cold was 6.5 below zero on the 13th,—giving a range of temperature for the month of 60.5 degrees. Greatest range of the thermometer in one day was 38.6, on the 10st; least range was 6.4 degrees on the 9th. Mean range for the month was 16.14 degrees. Mean height of the barometer for was 30.0186. Highest reading was 30.763 on the 22nd. Mean elastic force of vapor in the atmosphere was equal to .0935 inches of mercury. Mean relative humidity, 78.4. Maximum relative humidity was 100 on the 19th. Minimum relative humidity was 48 on the 11th. Mean velocity of the wind was 14.5 miles per hour; Greatest mileage in one hour was 46 on the 20th. Greatest velocity was 50 m. p. h. on the 9th. Mean direction of the wind, West. Mean of sky clouded was 68 per cent. Rain fell on 7 days. Snow fell on 16 days. Rain or snow fell on 20 days. Rainfall, 1.87 inches. Snow fall 27.4 inches. Total precipitation in inches of water was 4.61.

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Classical Study and Instruction.

BY NOAH PORTER, LL.D., YALE COLLEGE.

(Read before the American Institute of Instruction, at Providence, July 9th.)

We may assume that it is no longer a question whether classical study and instruction shall be maintained in our higher education. The assertion so often repeated of late, that classical learning is no longer required by the present generation, is now rarely heard; and the confident depreciation of classical instruction, in comparison with instruction in modern literature and physical science, has already, to a large extent, been either qualified or retracted. It is now conceded that, for a certain class of educated and professional men, classical study is indispensable, and therefore provision should be made for classical instruction in all the schools of higher education.

A great diversity of opinion, however, prevails in respect to two questions; viz., For what classes of pupils should classical study be prescribed as a necessary, or a very desirable element in their education, and what are the best methods in which classical instruction can be imparted? One of these questions, in a certain sense, involves the other. The answer to the first, *who should study the classics?* must necessarilly determine the answer to the second, *how should the classics be taught?* If classical learning is to be confined to the few who may be expected to become eminent proficients in its grammar and dialects, then it may be proper to teach it after one method; but if it is to be used as an instrument of general culture for a larger number of pupils, of whom few can hope to become masters of its grammatical metaphysics or its erudite history, then it is possible that another method of instruction is to be preferred.

I am aware that some of my hearers will hesitate to assent to these positions. The thought will at once occur to them—whatever is worth learning or teaching at all, is worth learning and teaching thoroughly and well so far as we proceed. Especially would they contend that, in the high schools, it is absurd to sanction, or even tolerate any study or instruction which is not in the most eminent sense thoroughly scientific. Their maxim is—whatever is studied or taught for discipline or culture, must be taught in its principles and after a scientific method; and this, whether more or less knowledge be imparted or received. They urge that the object of higher study is training, and whether the boy studies Latin or Greek one year or ten, so far as he advances, he should follow but one method, and make everything that he learns sure and scientific. All this is plausible to the ear of the mind. On the other hand, it should be remembered, that what is sometimes called a thorough and scientific method, presupposes that the power of analysis and generalization are already developed, or are ready to be unfolded. Moreover, it is a paradox to assert that teaching is sometimes scientific in fact, very nearly in proportion as it is unscientific in form. It may prove itself to be philosophical, by carefully refraining from taxing the powers to efforts that are beyond their natural and easy achievement; *i. e.*, by shunning, rather than following the forms and language of science.

In like manner, that method of study and teaching any branch of knowledge can alone be truly rational which distinctly keeps in mind the end which it seeks to attain, and then wisely adapts the means of accomplishing that end. Four distinct reasons may be given, why the study of the classics should be prosecuted in our schools and colleges. These reasons may be supposed to define

the ends for which they are taught; (1) This study imparts the knowledge of the grammar of two of the most refined and finished languages which have ever been used by man; (2) This study is the most efficient method of learning general or philosophical grammar; *i. e.*, of mastering the nature, the laws, and the history of language; (3) It brings the mind into familiar acquaintance with the literature, the history, and the life of the two most important nations of the world, with which, indeed, all the cultivated modern races and nations are most closely allied in their literature their life, their philosophy, and their institutions; last of all, this study is an excellent instrument of intellectual gymnastics, which would be worth all, and more than all, the labor it involves, were this the only result that should be proposed.

The inquiry would at once present itself; which of these is the supreme or the superior aid? On second thought, however, the question might arise whether these ends need be regarded as standing in the relation of formal subordination to one another; *i. e.*, whether any one of them is properly supreme. A thoughtful person cannot fail to inquire, if it be granted that mental disciple might be gained by this study, whether culture, as the wide and more elevated sense of the term, is not also desirable; and whether this may not, in many cases, be more valuable than sharpness and strength. It would be easier to answer the question, whether the special grammar of either the Latin or Greek languages should be proposed as the chief end of classical study, no reference being had to the power which it might give to read Latin and Greek authors, or even to study language and grammar in general. But perhaps it might not be easy to settle the question, whether the mastery of linguistic science should be made by any man, the chief end of studying Latin or Greek for a considerable part of seven to ten years. Were the ability to read with fluency, enjoyment, and appreciation, the literature of Greece and Rome to be proposed as the most desirable end of study, some would hesitate to set it so high as to overlook the other advantages which have been named. These questionings—not all of them easily settled—would point to the conclusion that all these ends are important, and that all should be sought for. Let this be conceded: the question will still return, which should be supreme—how far, if at all, should one be sacrificed to one or all the others? How can we arrange and estimate all these ends in that harmony which combines grace and strength which imparts culture and rewards by the consciousness of power? Our inquiries should be practical as well as theoretical. We should not conceive the ideal youth, or the ideal instructor, or the ideal university. We should conceive to ourselves the actual American boy, the American school, and the American college as they are—no, not as they are, but as we can hope to make them.

With this ideal before us, which we may hope to turn into the actual, let us proceed to inquire, what are the ends which we should propose to ourselves in classical study and instruction, and by what means can we attain them?

It will be my aim to show *that every method of classical study and instruction is defective which does not propose, within a reasonable period of time, to enable the pupil to read the Latin and Greek languages with ease and pleasure.* I maintain that from the beginning, this end should be constantly and prominently kept in view, that all the instruction should be regulated by this aim, and that whatever else is taught should be taught in subordination to this as the commanding purpose. I hold that if this object is made supreme, all the other ends which have been named will be achieved with greater certainty and effect, and that this alone can be relied on to sustain the interest of either pupil or teacher in the studies and teaching which are required of each.

I must, of course, assume that the instructor is able to read easy Latin and Greek prose with some facility and pleasure; that he has a cultivated historic imagination with æthetic sensibility and culture; that he is interested in English literature, and has some familiarity with the grammar and rhetoric of the English language. It would not be an unreasonable requisition to add that he should possess a somewhat familiar acquaintance with the French and German languages and literatures. But it is not necessary that he should be an advanced or consummate scholar in any direction, provided his conceptions of what he should impart to his pupil are liberal and elevated, and that in all these particulars he is considerably in advance of his classes. We do not require, because we have no right to expect, that the teachers of the elements of classical instruction should be accomplished linguists or widely read *littérateurs*, but we may presume that they have formed and endeavored to realize for themselves that ideal toward which they would direct and inspire their pupils. For one, I certainly should be very slow to trust a child of mine to a teacher in Latin or Greek who had never read his Virgil or his Homer for pleasure, and who knew and cared nothing beyond the correct translation and analysis of the selections with which his own school and college life had made him familiar. A teacher who has no attainments or aims higher than these, can impart little inspiration to others because he has none for himself. He can scarcely be trusted to teach even what he has learned, because what he knows has hardly become a possession of his own, not having been taken up or assimilated into his best inner life.

If I must look at things as they are, and adjust my remarks to the actual condition in which many classical teachers begin their work, I would say to every person who proposes to teach Latin or Greek; Do not content yourself with mastering your lessons, even if you are certain that there is not a point in the translation and analysis in which the most dreaded and exacting professor would find you deficient. Make it your first duty in the first month of your teaching—rather in the first month before you begin to teach—to master so as to read with the utmost facility some shorter of longer portion of a Greek or Latin author, and make it as much your own as a familiar selection from Macaulay or Cowper. After this initiation keep up the practice of reading in this rapid and cursory way several pages every week, of new or old matter, in order that the languages which you are to teach may become to yourself living forces instead of dry and dead traditions. Do not be content till some Greek and Latin author shall have ceased to be to you a stiff and swathed mummy, and shall have become a living and breathing man. In this there is nothing proposed which is extravagant or excessive; nothing which is not entirely within the reach of the most moderate abilities and scholarship.

The immediate effect would be as intimated, that the relations of these classic tongues to our own language would be appreciated by the teacher as never before. However carefully such a teacher may have been drilled in the grammar of his own language and that of Greek and Latin, he can never come to regard the dead language as a living language till he has learned to read it as he does his mother tongue, with rapid reading and in continuous discourse.

But suppose this is done and the impressions desired have been received, what ought to follow? I answer: something which does not always follow, even when the

teacher has learned to read abundantly and easily; and that is the constant reference of the pupil by his teacher to the English language as the standard, or starting point for what he is to learn in the Latin or Greek. To this end it is not necessary that the pupil should have already learned the English grammar in a formal way, or indeed in any way of reflection. He need not have been drilled after its processes, or have been forced to master its dry and abstract nomenclature. Indeed, he may begin the study of its grammar with his study of Latin. But it is necessary that the knowledge which the pupil receives of the Latin and Greek, should be placed in a living relation with what he already knows or may know of his own mother-tongue, and that the mysteries of case and declension of agreement and dependence should be illustrated and exemplified by what is familiar to his practice in his mother-tongue, even though it has never been analyzed by his thought. The teacher's path is usually smoothed and prepared if his pupil has already learned to apply the simplest grammatical relations to a living language, even in the most mechanical fashion. With this advantage the teacher finds it somewhat more easy to awaken the mind of his pupil to the intelligent apprehension of what grammatical relations signify. The method too often pursued, of leaving the pupil to the grammar alone, forcing him to commit its rules to memory, and drilling him to their dexterous application, overlooks the first condition of success, which is to introduce to the pupil as early as possible the conception that the classic languages might have been used by living men in a common tongues, writing, and speech. Many a scholar can remember the time when, after years of mechanical toil, such a revelation was made to his mind. Every one to whom it has been made can also remember that with it there came to him a new inspiration, imparting freshness and enthusiasm to all his subsequent studies.

We are not so ignorant or sanguine as to suppose that this conception can at once take such possession of any child or youth, however wisely trained, as it now and then does of a mature and earnest man. We would have our pupil so trained however, that no such sudden revelation or inspiration could be possible or necessary.

If we may suppose that a just conception of the relations of the ancient to the mother tongue shall have been established, we are prepared to follow both teacher and pupil in their course. We insist, as the next thing, that from the biginning and onward, liberal reading should be exacted of easy passages, for the enlargement of the vocabulary coupled with the recital to the ear of selections learned. Let the grammar at first be as simple as possible. Let difficult and exceptional forms of paradigms be avoided for months, and the simplest relations of syntax only be recognized. In other words it should be a prime rule in teaching that the language should be familiarized to the mind as a language as far as possible, and its grammar be obtruded as little as possible, until a certain facility in reading and in writing shall have been attained.

I am well aware that the views expressed are not in accordance with the theory or the practice of many able teachers, and that they seem to run counter to the theory of our best grammars; but I maintain that they are correct notwithstanding; that their importance is beginning to be recognized, and that, unless the current practice is somewhat modified, the interest of classical study and instruction will be seriously endangered.

The opposite theory may be thus characterized: The ancient languages are studied, not for the sake of the language, but for the sake of its grammar; its grammar is studied for its relations to philology, and philology is studied for the ends of linguistic science, or mental discipline—one or both. Some few of my hearers may be able to recall the successive steps by which this theory has been put in practice. The most of us know that, with the advance of philosophic reflection, and of positive knowledge, the syntax of the ancient languages has been more philosophically treated. A better theory of the cases of the noun, and of the moods of the verb has been adopted. More satisfactory generalizations have been reached in respect to the constituents of the sentence. It is true, the theory of grammar can hardly yet be said to be settled, and the students of comparative philology maintain conflicting theories with no little asperity. It is not to be forgotten that each grammarian has his special theory, which more or less affects his views of syntax, so that teachers and pupils are constantly exposed, not only to the thorny mazes of a highly abstract and refined, logical theory, but to be harassed by the discussion of a not always amiable controversy. But, passing over this, fairness would oblige us to concede that the results of comparative philology are most important in unfolding the history of the inflections of verb and noun. The light which its conclusions cast upon the doctrine of the paradigms, cannot be over estimated by the students of language or of history. It was not only inevitable, but most desirable that these results of the new philology should be incorporated into exhaustive and scientific grammar of the ancient languages, and that the most eminent philologists should write these grammars anew. Every critic and scholar must necessarily study the structure and formation of those languages by the light of these discoveries, and not only analyze them into their constituent elements after the correct theory of their composition, but reconstruct them again out of their elements in an historic order. No scholar can render any but the sincerest honor to the new philology, and to the truly scientific grammars to which it has given birth. To attempt, however, to introduce the elementary student to a scientific theory of the paradigms, to teach him to evolve his own grammar out of his own brain, or to impose on him the duty of mastering an elaborate system of syntax, is literally and metaphorically *preposterous*. That this has been formally attempted, no well informed person will deny; that, when it has not been attempted in form, the method of teaching and of learning has been directed by this aim, is too obvious to require any proof. What has been the consequence? It cannot be denied that a useful discipline of the mind has been achieved by many students. It cannot be denied that now and then a good student of philology has been trained, that the elementary and higher teaching of the classics has been more thorough, and that a broader and more scientific foundation for future study and reading has been the result. On the other hand, it is equally certain that a positive interest in classical study among the middling and even the better scholars, has been steadily subsiding, and that the capacity and the desire to read the classical authors as literature, has been steadily declining in direct proportion to the multiplication of the facilities for understanding their relations to history and literature. Other causes have contributed, in part, to this result, as the greater facilities for studying the modern languages;—a higher appreciation of English philology and literature, the splendid attractions of physical science, and the engrossing problems of speculative phylosophy. But the chief reason must be found in the theory after which elementary instruction has been imparted, and elementary text books have been written.

This result is not confined to this country. An able critic * of university and gymnasial instruction in Ger-

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* Heinrich Von Sigbel: *Die Deutschen Universitäten ihre Leistungen und Bedürfrisse.* Bonn: 1874.

many, write as follows: "For ten years observers have wondered and been disturbed at noticing that our young students, so soon as they leave the school benches, very rarely afterwards take a classical author into their hands. For this, not one reason, but two in one, may be given. They read the classics no longer, because, in their nine years in the gymnasium, they have never learned to read them; and, moreover, in their nine years they haved heard from their teacher, but have never seen with their own eyes what fullness of instruction, elevation, and delight is stored up in these ancient writings. As an offset, the utmost possible has been attempted to perfect the study of grammar as a means of intellectual gymnastics, by scientific thoroughness, from the first day of the lowest form to the last day of the highest. It was formerly the fashion to learn by play, but the rational method is now all the rage. There is this great difference between the two: the first was founded on false principles; the second proposes results that are altogether rational, but an aim wich is the highest of all, may become injurious when it is introduced at an unseasonable place. Instructors pride themselves on being able to explain to their boys, on grounds of the historical and comparative philology, the origin of every grammatical form and rule, and by the same methods to set aside the unpleasant exceptions and irregularities, and to make manifest to the youthful mind the pure conception of that conformity to law which prevails in languages. The inductive process is employed even in the lower-classes, with similar enthusiasm. The rules are not given to the boy, but he is instructed how to evolve them out of his little reading lessons. He does not learn them by heart, but he derives them afresh from every case that presents itself. Rector Peter has shown very clearly that such a method, though admirable for a mature scholar, is antagonistic to the age of boyhood, and for that reason to all the conditions of successful elementary instruction. Every science requires for its successful prosecution, that certain elements should be unconditionally appropriated by the mind, and should forwith be applied with unconscious dexterity. These first steps are essentially an affair of the memory, and it is fortunate that Nature herself has provided for this necessity, in that, till about the fourteenth year, the boy has an unslaked thirst of memory, while the impulse to judge and reason is dormant in the soul. While it is altogether germane to nature and reality, however, at this stage of the boy's progress, to give single impulses to the power of judgment, as is done in geometry and grammar, the chief stress should be laid upon the simple acquisition of material, and all questions respecting the wherefore, and the why, should be thrust forward to that future period of life which enables the boy to answer them.

Above all should it never be forgotten, that the boy learns a foreign language in order that he may learn to speak well, so that he may think well. For this reason, he should in the grammars at first be confronted with the simplest, and the most easily comprehensible forms for systematic development, simply those isolated principles which are indispensable for reading and understanding, and with these should proceed directly to reading, writing, and speaking. That the Latin will not at once, and perhaps never come to us as our vernacular, need give us no concern; it is enough if it shall again be regarded by our boys as language, and not as materials for the science of language.

We expect more from grammar than we do from the mathematics. Besides its disciplinary force, its special function consists in its capacity to reach the pupil to find the fit expression for the most delicate shades of thoughts, and by this means, to render him capable of clearness and definiteness, as also of skill to combine and to develop his thoughts. These advantages can never be reached, if the language by which they are archieved does not become to the pupil somewhat plastic and living; *i. e.*, if grammatical study, and the practical use of the language do not go hand in hand. The knowledge of a foreign languages is for the gymnasium not an end of its own, but an instrument of culture. The pupil studies Latin and Greek, partly that he may be confronted with the spirit of ancient life, partly that he may learn to speak and write good grammar. The additions of the modern method help neither to the one nor to the other; on the contrary, they withdraw strength from both. After these considerations, we shall no longer be astonished to learn that the greater part of *the abiturients* who come to the universities are unable to read an easy Latin author without difficulty, or a Greek author without the grammar and dictionary, and that the majority write German in an awkward and unskillful style, and many do not know how to write even their vernacular with grammatical correctness."

We have already observed that these tendencies and consequences in Germany and this country have followed from a sincere desire on the part of professors and teachers to make the study of language more truly scientific and more severely disciplinary. It would not be difficult to show that if they are not checked they will defeat the very ends which they propose to promote. That method of study cannot be healthful in its discipline which introduces the methods of science before the mind of the pupil is capable of severely scientific processes, and meanwhile neglects to cultivate the memory and stimulate the imagination at an age when the memory and imagination are most active. Grammar in all its forms is the product of abstract reflection. The student who traces its history from its first beginnings with the Stoic logicians, down to the highly artificial and severely systematic forms which is has now attained; the teacher who reflects superficially upon the nature of the relations with which it requires the pupil to become familiar, and the dryness of the nomenclature which it forces him to learn and apply, cannot but be sensible that the intelligent apprehension of the simplest syntactical relations is no easy task for the youthful mind. This task is not alleviated when the additional burden is imposed upon him of mastering the theory of case and tense formations in the light of their historic changes, and especially when these historic changes are made to illustrate a recondite theory of linguistic development. The only possible method of making the grammar tolerable is to make the language interesting; and the only way of making the language interesting is to stimulate and reward the memory and imagination by the exercise of power.

The beginner in the study of language has little power to reason or to generalize. This capacity can be awakened only gradually. He has abundant capacity to remember and recite. This he can be taught to exercise, and as he makes progress he will gain confidence in his own capacity and find delight in his own achievements. He must be made to study and compelled to learn at any cost; but it is one thing to made a boy study what he can actually master and another thing to compel him to learn what he cannot understand. The teacher after the new method would then find "a prodigy of parts"—who has a precocious and one-sided memory, or an unnatural prematureness for generalization. Such a pupil meets the demands of the new system, and the teacher takes his achievements as the normal and proper standard for the average boy, who is not stupid or perverse, and he satisfies himself with driving an entire class through the unnatural processes in which only a very few are successful. And what

is the result? There is no genuine enthusiasm in the work,—there is little delight in conscious progress, because there is no exciting and rewarding sense of power. Even the prodigy of the class has little delight in the language which he studies, as a living embodiment of thought and feeling. The drill is admirable, as it must be if the exactions are severe, but the sense of monotony soon becomes intolerably dreary. The preparation for the class-room is mechanical; the recitations ressemble the wearisome round of the mill-horse. As the result of the whole, the prodigy of grammar—the one boy among ten—studies philology and Sanscrit in order that he may teach grammar to another generation. Of the remainder, two or three become, by much painstaking, good Latin and Greek grammarians, who bring from their studies valuable results as the reward of the paids taking application and the severe intellectual gymnastics to which they have been subjected for years. But they retain because they have formed but few fresh and exciting associations with the sentiments and life of antiquity, and their impressions are comparatively feeble of the wonderful precision and flexibility of the diction for which the classic writers are so conspicuous. To read a Latin author has become, to but very few of the many who study Latin, a positive pleasure. To read Greek prose is to the most of them a task, and so when the college curriculum is over, the majority of the class smile significantly when advised to read a single Latin author for enjoyment, while the best scholars respond to the suggestion with no enthusiasm, and, with few exceptions, fail to put it into practice. The teacher has the satisfaction of having, taught the languages in a truly scientific method, of having drilled his classes with the most exact ing severity, and sharpened their faculties by the most perfect milling process that could be conceivable. He has laid a broad foundation, as he calls it, for the future study of the languages, *provided* the pupil, after his seven years of school and college, shall give a sufficient portion of the following years to the mastery of the vocabulary, and the correct reading, as literature, of the great masters of ancient thought and feeling.

We contend that with a different method, the same or better attainments would be achieved in scientific grammar and comparative philology, with the addition of a far richer vocabulary, of the power of reading easily Latin and Greek prose, and of an insight into and a sympathy with the peculiar life of antiquity; and above all, of a more intelligent appreciation of that which is excellent in English literature and English diction, and a more refined enjoyment of whatever Christianity and science have done for modern literature. We contend that the method of classical study and instruction which we have sketched is the only method which is truly scientific, because it alone follows the laws of psychological development and adapts its methods to the changing capacities of the recipient. Ii is not one of the least of its advantages, that it compels the instructor to study the capacities of t the individual pupil, and bring himself into close and affectionate sympathy with every new class which comes under his care; in short, to be perpetually young again, as he must perpetually renew his youth, with the young minds and the young hearts which the Creator and renewer of life brings freshly to his love and guidance with each returning year. If the remark of Coleridge may be accepted, that the secret of genius is to carry the feelings of childhood into old age, it is preeminently true of the genius for teaching, which in this respect, like every other divine gift, "blesseth him that gives and him that takes."

—*New England Journal of Education.*

Light and Air in the School-room.

We can understand, obviously enough, how that mistaken principles may be applied to certain buildings which would result in entirely or nearly deficient ventilation with but little direct injury to a few persons, owing to exceptional circumstances.

A similar defect in the ventilation and cognate appliances of a school-house, however, might be attended with disastrous results. The respiration of the same air again and again by adults, for instance for a couple of hours on a Sunday, is never so mischievous in its consequences as when experienced every day for five or six hours, and sometimes longer, by children of tender years. If the freshness and purity of the air breathed by older persons has an important bearing on health, as witness the difference between men and youth whose daily occupations confine them much indoors, and those who follow an outdoor occupation, how much more in the case of a child kept long in a school-room with many others?

The temperature and quality of the air which is to enter the lungs becomes, then, subjects for hourly consideration in the school-room, as contributing by its purity or impurity to all the vital functions, directly or indirectly.

To rebreathe the air which has once passed through the lungs is not agreeable. Nature thus early warns us, through our sense of smell, of a deficiency in the life-giving oxygen, and this warning is continued throughout the further progress of deterioration. The constant breathing of a vitiated or over-heated atmosphere will directly tend to undermine the constitution of a child, and, for the time, even render it more susceptible to sudden changes of temperature when leaving school. And even, as an intelligent writer on the subject says, "when occurring (vitiation) in less degree, as in rooms where partial ventilation exists, much of the restlessness, inattention and apparent stupidity, often observable among the children, is due more to want of freshness in the air than to dullness in the scholar. A teacher will find his or her task materially facilitated, if carried on in a light, cheerful, warm and airy room. However important in all rooms and collections of rooms, let us understand, once for all, that proper 'warming and ventilation' is seldom of such vital moment as in the school-room, and that education cannot properly be carried on without it." (1)

Of almost parallel value and importance is the consideration of proper and sufficient lighting and the arrangement of seats in the school-room.

Mr. Robson, the author of an excellent work on school architecture, recently published in London, says:

"Some may think that so apparently trivial a question as that of school desks could not justify much discussion. Medical authorities think otherwise, and lay the greatest stress on the proper shape and proportion to be used in every part, as well as on the admission of suitable light in a suitable manner to the children seated at the desks.

"According to Dr. Leibreich, the noted opthalmic surgeon, in London, the change in the functions of the

(1) The principal of Public School No. 9, in Brooklyn, has recently put into operation a simple and efficient remedy for over-heated class rooms.

Small blanks, which contemplate the record of hourly observations of the thermometer during the school hours, are placed under the control of the teacher, who is required to fill them up. The effect of thus systematizing a series of observations of this character, has already been notably beneficial in maintaining the temperature of the several class rooms, at a point where the health and comfort of all concerned is subserved.

visual organ developed during school-life are threefold —viz:

"1st. Decrease in range, or short sightedness (Myopia).

"2nd. Decrease in acuteness (Amblyopia).

"3rd. Decrease of endurance (Asthenopia), and are owing chiefly to two causes, improper method of lighting and improper shade of the school desk. Confining ourselves to the first, great importance should be attached to the opinion of Dr. Leibreich as an eminent occulist. Is *myopia* developed chiefly during school-life? If it is, and to a greater extent in schools, injudicously lighted, the question assumes a practical aspect. It is easy to understand that eye disease may be on the increase, and that careless or ignorant arrangments may tend to aggravate it, but other causes must surely be at work besides bad lighting and unsuitable desks. Education of almost any kind must to a certain extent affect sight. Civilized man never has the perfect vision of the savage. Constant poring over books and white paper is known to be injurious. When continued through the many years required for completing a higher education, the results may easily become marked, unless the education be conducted with the greatest care and discrimination in suitable premises.

"Diminution of and injury to sight cannot be entirely attributed, with fairness, to improper position of windows and bad shapes of desks. In no country in the world is there a more complete system of national education, or one which has existed longer in its popular form, than in Germany. And in no country has closer attention been paid to the judicious lighting of school buildings, and to the proper shape of school desks. The light is invariably admitted *from the left side only* of the children. The desks are the results of long study on the part of their anatomical authorities. Yet in no country is *myopia* so common. The short-sighted, spectacle-wearing German is a well known type on the stage of any London theatre, just as he is in the streets of Berlin itself. Increase of knowledge must have some attendant drawbacks, however comparatively slight, and impaired eyesight and crooked shoulders may be among them if due care be wanting. This is one reason why instruction in the hall for gymnastics has become an inseparable part of the regular school course in Germany.

"The second change in quality of eyesight (*amblyopia*), occurring during the school age, may well be left to take care of itself. Decrease in the acuteness of vision must always rank in the same category with decrease in youthfulness, as one of the ills which flesh is heir to.

"The third abnormal state of the eye arises, we are told, principally from two causes—one, a congenital condition which can be corrected by the use of convex glasses—another, a disturbance in the harmonious conditions of the muscles of the eye, often caused by unsuitable arrangements for work. Insufficient or ill-arranged light obliges us to lessen the distance between the eye and the book while reading and writing. We must do the same if the desks or seats are not in the right position or of the right shade and size. When the eye looks at a very near object, the accommodating apparatus and the muscles which turn the eye so that the axes converge towards the same object, are brought into a condition of greater tension, and this is to be considered as the principal cause of short-sightedness and its increase. If the muscles of the eye are not strong enough to resist such tension for any length of time, one of the eyes is left to itself; and whilst one eye is directed on the object, the other deviates outwardly, receives false images, and its vision become indistinct—*amblyopic*—or perhaps the muscles resist these difficulties for a time, become weary, and thus is produced the diminution of endurance. How can these evils be prevented? The light must be sufficiently strong, and fall on the table from the left hand side, and as far as possible from above. The children ought to sit straight, and not have the book nearer to the eye that ten inches at least. Besides this, the book ought to be raised 20° for writing and about 40° for reading.

The question of lighting has been much discussed in Germany for some years. The recent researches of Dr. Cohn give us the fact that, of 410 students whom he examined, only one-third were found to possess good-sight; nearly two-thirds were short-sighted. Among 224 cases of *myopia*, only 59 were hereditary. He visited many schools, and found generally a large percentage of short-sighted persons. He considered the reason to be the defective lighting of the schools, because the relative number of the persons whose sight was injuriously affected was found to be smaller in the better-lighted buildings. It is therefore argued that a class-room is only well-lighted when it has 30 square inches of glass to every square foot of floor space. Taken in conjunction with other considerations, this would show that each scholar should have the advantage of about 300 square inches of window glass.

"The calculation is very rough, and cannot be accepted as a rule, for much depends on the position of the glass. It serves, however, to show the kind of attention now paid to this branch of school planning.

"The taxes on knowledge, payable by children, in the shape of weariness and fatigue, are sufficiently heavy to justify all the pains which are being or can be taken to alleviate them. It is yet difficult to believe that although 20 per cent. of all school boys, and 40 per cent. of all schools girls in Switzerland, may have one shoulder higher than the other, the cause is to be found in the improper shapes and positions of seats and positions of seats and desks in days gone by. In England, we have, in the past, always neglected the question of lighting our schools scientifically. Provided the quantity were sufficient, little care was used as to its source or direction.

"To summarize the results arrived at on the subject of school desks and their lighting, we may point out:

"(*a*) That a desk for two, 3 feet 4 inches long, with intervening gangways, 1 foot 4 inches wide, has proved to be the best for graded schools, and that five rows have been found practically sufficient in the direction of depth or distance from the teacher.

"(*b*) That the full-size section should be carefully studied in every part, and adapted to the anatomy of the human frame in its varying sizes.

"(*c*) That lighting from the side, especially the left side, is of such great importance as properly to have a material influence over our plans.

"The first and last, tending to determine the specific sizes of rooms, and to effect the general principles to be followed, have an important bearing on the arrangements of plans here-after given, and cannot, therefore, be too clearly remembered."

Notwithstanding, therefore, the far reaching progress in the design and detail of school-house construction and in the methods of teaching, etc., cheerfully recognized on every hand, the field for improvement is still a broad one, offering abundant opportunity for intelligent discussion in all that tends to thoroughness in education or contributes to the health, convenience and happiness of those for whom it is a pleasure for us to subordinate every selfish and personal consideration.

—*N. Y. Journal of Education.*

Frivolous Instruction in the Common Schools.

Practical elementary knowledge was unquestionably the simple idea of the common school system. That simple idea has become a very complex one; and instead of thorough instruction in reading, writing, spelling, arithmetic, grammar, geography, and the history of one's own country and political institutions, children are coaxed, wheedled, dragged, or driven over every division of science into which knowledge, speculation or experiment has been formulated. The course of study which children from six to sixteen years are now expected to pursue with intelligence and profit, includes:

Reading,	*Latin,*	*Physiology,*
Spelling,	*Botany,*	*Greek,*
Writing,	*Music,*	*Geometry,*
Drawing,	*Geology,*	*Algebra,*
Music,	*Astronomy,*	*Chemistry,*
German,	*Optics,*	*Mineralogy,*
History,	*Hydraulics,*	*Political Economy,*
Zoology,	*Dynamics,*	*Rhetoric.*

The mental energy of the child is thus distributed over this immense field, comprising all the accumulations of investigation which mankind have made since the beginning of time; instead of being concentrated upon the chief elements of all knowledge,—namely, language and arithmetic, — without a thorough familiarity with which, honest progress in secondary studies is impossible.

The result of the distributive system of instruction is that the children of the comparatively poor, who constitute the large majority of every community, leave the common schools entirely unfit to earn their living with the intelligence and efficiency which might have been reasonably expected from the number of years they had spent there, and the cost of their instruction assessed upon tax-payers.

A boy of sixteen is graduated from a high-school, and seeks employment. He asks the counsel of a trusty friend, and this colloquy is likely to ensue.

Old Practical. Well, what can you do, John?

Conceited John. Oh, almost anything, I suppose.

O. P. But what *can* you do?

Surprised John. Why, I can do——

And he flatters himself that his hesitation is certainly a mistake. Has he not been at school since he was six years old? Did he not "learn everything"? Was he not a smart boy? Has he not his diploma of graduation from the high-school?

O. P. What have you been studying the last few years?

Complaisant John. Greek, Latin, German, French,——

O. P. All right. You must go to college, and be a lawyer of a doctor,—or a minister. Would you like to be a minister?

Honest John. No, sir. Father is dead, and mother can't send me to college. I must go to work right away, and earn money. It is needed at home.

O. P. Very well. That does you credit. You know German and French. Mr. Lamonte, an importer, wants a correspondence clerk to read and write letters in those languages. That will be a nice place for you——

Perplexed John. Oh no, sir. I only know a little of each. I can read them in print pretty well, in the books we used, but I cannot speak them or write them.

O. P. Well, what else did you learn?

John. Chemistry——

O. P. That will do. The druggist on the corner wants a young man who understands the properties of chemicals and manufacture of drugs, and your knowledge of chemistry is just the thing——

Scared John. Oh no, sir. I don't know anything about chemistry—only a little—some of the definitions and pretty experiments. We had not much time for chemistry.

O. P. 'H'm. You are equally well off in geology, astronomy, mineralogy, botany, zoology, optics, physiology, and all the other things, are you?

Chagrined John.————

O. P. Well, never mind. You studied geometry and trigonometry? Yes, of course. A friend of mine, a surveyor, asked me to find him a capable assistant, and he would pay him good wages——

Unhappy John. Oh no, sir. I could not do that. You see we had not much time for geometry; I can demonstrate some of the propositions in the book, by the letters —that's all.

O. P. You can draw? You can earn something in an architect's office? You can help the draughtsmen over in the Locomotive Works? That's a good business——

Laughing John. Oh no, sir! I can't draw! I had no taste for it, but went through the forms with the rest of the class, because we all had to. But I scarcely know a straight line from a curved one; mother always said I had no "eye" for drawing, or anything like *that.*

O. P. You're rather a neat and pleasant lad—fond of music? You studied that in school ever since you were a little fellow? Of course. Well, I can get you a place in a music store——

Miserable John. Oh no, sir! I don't know one note or sound from another. We studied music in a sort of way, because we were "marked" on it, but I never *could* learn it. Mother knows I have no "ear."

O. P. Of course, you can keep books?

Downcast John. Oh no, sir. I wouldn't dare to try. We had a class once in single entry, but we were so busy with our Latin and Greek and Geology,—and all the other things, that we did not pay much attention to that.

O. P. Anyhow, you learned grammar and rhetoric, I am sure. That Mr. Kopp, who has an insurance agency, told me last week that he would like to get a nice smart young man who could prepare correct statements for him out of his books—write out his reports,—and so on. You are the very lad for Kopp——

Trembling John. Oh no, sir. I can't do anything like that. Why, I have not looked inside a grammar for years; we don't learn English grammar in the high school, sir. Grammar is only taught in the lower grades, and then I was too young to understand it. Mother has had to correct my language at home, but I don't know whether it is correct or not. I can't parse—I never could. And we only wrote compositions now and then, and I always teased my sister into writing mine. Boys don't like composition as well as girls, sir.

O. P. I guess we'll have to fall back on your arithmetic. Your hand-writing, I see, is not very good, but you can improve that if you try. You learned all about percentage and interest and foreign exchange in your arithmetic. I will give you a note to one of the banks——

Overwhelmed John. Oh no, sir! We did not study arithmetic in the high-school! And I never understood percentage—it is the hardest thing in the book. I was only a little boy when we were in percentage, and I could not get it through my head. Decimals always puzzled me——

O. P. You have been in school ever since you were a little fellow able to go. Your mother has kept you there, at great inconvenience, calculating that you would be able to support your brothers and sisters until they grew up. You have "studied everything"—including Latin and Greek and all the ologies and drawing and music. I guess you can now earn fifty cents a week as a parcel boy.

Everybody except teachers, school superintendents, and

committee-men who approve theoretical, elaborate, and fancy courses of study, knows that this picture is perfectly truthful. Every boy—every girl—knows it, who has gone through the common-school course as it now stands, and undertaken to find remunerative employment. It is the natural result of the distributive system of elementary instruction. The children's minds are scattered broadcast over the diversities of knowledge, instead of being kept upon arithmetic and language until they have thoroughly learned the principles and the practice of both, and learned them so thoroughly that it will be impossible ever to lose either the skill or the knowledge.

The distributive system of instruction may be well enough for the children of the rich who will spend additional years in college or the university, where prolonged study may be devoted to acquiring exactness in several sciences, and who are not compelled to turn themselves, for bread, into the quick world of work where the highest wages are paid for skill in practical mathematics and grammar, and which pays nothing at all for mere fringes of scientific or ornamental knowledge.

It would be difficult, it may be demurred, to devote ten years of instruction exclusively to language and arithmetic, with five hours in each school day. The difficulty assumes larger proportions in the printed course of study, however, than it would in the school-room. But such a restriction is by no means necessary. The fault is not that other things are taught, but that other things are taught to the neglect and the substantial exclusion of these.

In the study of language are included reading, spelling, writing, grammar, rhetoric, composition, and literature—seven studies, instead of one. In arithmetic, there is work enough to be carried through every term in ten years, if the boy or girl is to become thoroughly skilful in what we mean by practical mathematics,—indeed, six terms—two years—might be spent with solid profit upon the allied subjects of decimal fractions and percentage. If teachers and school superintendents doubt the accuracy of this statement let them consult business men. It is an almost universal fact that a man occupying a responsible financial or mercantile desk has had to acquire his capability to transact his duties by making them a special study *after* he has left school, no matter how many years he remained there. Arithmetic is begun early enough in the course of study, but it is dropped too soon. Of late years, a correct instinct has led to what is technically called mental arithmetic—mathematical operations without material aid. This is begun early enough, but there is not enough of it. It is by far the best means of developing logic in the child's mind; it not only familiarizes him, gradually and happily, with the various operations in numbers, but it is the most efficient method of inducing the application of reason in all his mental efforts. Yet it is practised only twenty minutes a day, through a year and a half or two years, and receives less consideration than drawing—which is time thrown away,—or music, which is delightful and desirable, but, after all, not practical; and less than any other of the dozen superfluities which make an imposing display in a course of study, but which do little service in the fitting of a boy or girl for bread-getting. Arithmetic, mental and practical, should be continued until the last day of a common-school course. It will be objected that pupils will have to "go over the same thing." So they should; there is no other way by which children acquire permanent knowledge. To memorize a rule is necessary; but it will be forgotten. But to perform again and again the operations from whose principles the rules are derived, will enable the mind involuntarily to evolve the rules, and the methods will be fixed by the practice. As the average course of study is now divided, a child, with his feeble, forgetful faculties, is expected to perform ten years' mathematical work in six or less, and the heaviest misfortune is that the course takes him over in his infantile period the very principles and practice which he should have an opportunity to study latest and last. Arithmetic ought to be begun very early: but it should occupy, with grammar and composition, the largest part of each day in the last two years of a common-school system. Would it not be more reasonable to give the senior boys of the high-school half an hour a day in mental arithmetic than in mineralogy or geology, astronomy or botany? These have their proper value; but they are not valuable, to the exclusion of arithmetic, for boys and girls who will leave the high-school to earn their bread. Their value comes later in life.

It contributes to one's happiness to gaze where

> Heaven's ebon vault,
> Studded with stars unutterably bright,
> Through which the moon's unclouded grandeur rolls,
> Seems like a canopy which love has spread
> To curtain her sleeping world,—

and to be able to name the planets,—for that is about as much astronomy as a boy or girl of sixteen will learn,—but that is a very insignificant part of education, and has absolutely nothing to do with labor and wages. The time devoted to a superficial and very imperfectly understood introduction to all the physical sciences might be expended with far more advantage upon practical arithmetic, grammar, and English composition, while book-keeping would be an admirable substitute for the smattering of French and German.

It is not apparent why, in a common school system, intended only for simple elementary instruction, at taxpayers' expense, any time or money should be devoted to drawing, music as a science, any foreign language, living or dead, or the sciences which are not of common use. At a grade institute in Chicago the other day, a teacher stated that, owing to the amount of time taken up by German and drawing on her schedule, she would have writing only twice a week! But drawing and German were taught daily. For ninety-nine of a hundred children, every moment spent on drawing and German—although a knowledge of both is valuable—is thrown away. The first demands for success in its pursuit, special talent which God gives to only a few of the mass, and these few will find a way to cultivate their gift if it be worth cultivating. The rich and difficult German tongue is only toyed with in American common-schools; very few children lay even the foundation upon which, in after years, to build a superstructure. But every child should be taught, until the day of his dismission, to write his own language, quickly, legibly, and neatly. The distributive system of instruction assigns more time to impossible, impracticable, and ornamental studies than to this manifest essential of usefulness.

If we are to have additional studies, why shall they not be such as will inure to the child's benefit? If there be more time than can be profitably or pleasantly spent on reading, writing, arithmetic, grammar, and history, why not diminish the school hours? The health and strength of the students would not be injured, but enhanced, by that. If there is to be no diminution,—if the extra time remain,—who not put it to a useful purpose? Why teach drawing instead of sewing? This is a serious question. Will not it be a greater advantage for a girl to know how to sew with neatness and expedition than be able to tell the difference between an oblique line and a curve? Why teach music, when so many cannot learn even its fundamental distinctions and can never

turn it to account if they would, and not teach book-keeping or tailoring? Music and drawing consume time which produces neither artist nor musicians; the same time devoted daily to the acquisition of a trade would be fitting the boy for life. It will be answered that it is impracticable to give instruction in the schools in these handicrafts; then do not keep the boys in school, wasting the time; let them seek some such instruction where it can be given. It is not impraticable to teach sewing; nor as difficult or annoying to the teacher as instruction in drawing is. It is sometimes argued that drawing is an aid toward writing. This plea is quite absurd. The child writes well who mechanically acquires muscular skill in imitating certain rigid models which compose our script alphabet; the gift of the artist is to abolish rigidity and discover curves and *chiar-oscuro*. The artists are usually the worst penmen in the community. The children should be trained for business; not for art. If any artist in embryo be among them, he will naturally develop into his intended state. Teaching him to write clearly will not defeat or impair destiny. Every embryo inevitably matures into what God intended it should be.

It is quite notorious how few successful merchants dare even write their own letters. They are educated men, in a general way; in their youth they were taught many things, but grammar was only imperfectly acquired, and they do not trust themselves in its mazes. How few leading public men send a line to the press without first subjecting it to the censorship of some friend capable of correcting, if need be, its grammatical errors! How few Senators and Congressmen, on the floor of the National Assembly, are not indebted to the generous and unappreciated news-paper man for setting right the verbs and subjects, the cases of the nouns, and the number of the pronouns, before the honorable gentleman's ungrammatical speech reaches his admiring constituents!

The lack of adequate knowledge of grammar and arithmetic has blunted the life of many an able and ambitious mechanic. There are men working at the forge, in the boiler shop, and among the moulders' casts, whose brains are big enough and clear enough to place them in stations where their talents would bless mankind, and enrich and enoble themselves; but they remain drudges and slaves of matter because they have not sufficient knowledge of grammar to write an exact statement of an idea, nor enough familiarity with the rules of arithmetic to solve, in figures, the problems which their association with involved machinery suggest. George Stephenson learned to read after he was grown up, and to write, by the light of his engine-fire, after his marriage. But in the United States the children who become mechanics go to the common schools for some years, at least, and instead of being taught language and mathematics with a persistent thoroughness, their precious period of school-days is largely frittered away upon a list of sublime sciences, not one of which they learn anything of, not one of which can render them substantial assistance.

Let not the reproach be suggested that the children of the poor should not acquire universal knowledge; that a royalty ought to be placed upon science and art which only the rich may safely invade. No, no; knowledge is the domain of every one who chooses to enter upon it; but let us give to the children the keys by which its gates are opened. The keys are—ready skill in arithmetic, and that actual familiarity with the grammar of the English language which will enable each to think with a consciousness of exactness; and so thinking, he will not be afraid to speak and to write. Together with these, they should be taught geography to a reasonable extent, United States history, and book keeping. They will learn other kinds of knowledge after their minds are ready for them. And music will not depart from the schools, even if the music-teacher never enters there.

ARABIA FELIX.

—*In National Teachers' Monthly.*

Hints to Young Teachers.

GOVERNMENT.

It may seem strange, but I think you will recognize the fact, that when you hear the expression, "He is a first rate teacher," six times out of seven it has no reference whatever to the instruction, but means that the school is in good order and well governed. I know teachers, who have been successful in their calling for years, who have very little knowledge to impart and very little skill in imparting the small amount they have, but who possess that gift for organising and directing which makes them born leaders.

Although it is scarcely just to call a man a good teacher merely because he has good government, yet there is a truth lying at the foundation of this general opinion, as there usually is of one so commonly received. Education is something more and higher than merely imbibing facts. Its very first lessons are order and obedience, and he who cannot command these need not hope to success in minor matters. They are the foundation, without which it is impossible to rear the edifice. I give you this little lecture preparatory, that you may go to your school Monday morning decided that, first of all, you will have system and obedience: and to this subject I shall devote most of this letter.

You find your children all collected, and casting curious glances at the new teachers, for unspoiled children are adepts at reading character. Assume your place as teacher at once, quietly but firmly. I will say nothing at present of the matter of opening school, as that will come more appropriately in my next letter. Take your scholars' names in full; then their fathers' names and addresses; then the studies which each scholar desires to pursue. This may seem a small thing, but it will keep your pupils busy and curious as to what is coming next; it will impress them with the importance of their school duties, to see everything put down in black and white; and, most of all, it will give you time to overcome the nervousness natural to a new beginner, and to regain your composure and presence of mind. Remember, in the very beginning, that "an ounce of prevention is worth a pound of cure," and try to make such arrangements that you may, as far as possible, preserve order without punishing. You can often tell by faces or motions of scholars where to look for mischief. Try to seat those inclining that way near you, and separated from each other.

Do not make many rules, but state clearly what your regulations are, and then *do not talk* about them. I have heard teachers begin by saying: "I have made these regulations for the good of the schools; and I am sure, if you will consider them, you will see that they are reasonable and just, and I hope that none of you will think of disobeying them." The possibility for disobedience being presented to their minds, the children immediately begin to question whether the rules are reasonable, and if they decide that they are not, they consider themselves at liberty to break them. Better simply to tell them, "you are to do thus and so," taking it for granted that it is your place to decide, and theirs to obey, and nine times out of ten they will do it without question or hesitation.

Obedience to properly constituted authority is one of the most valuable lessons of their lives, and here is just the place for them to learn it. Never allow a scholar to argue, or answer you back. You place yourself on his level, and lose all the advantage of your position. Never promise or threaten anything which you are not certain you can and will carry out. Nothing so quickly wins childrens' confidence, and establishes your authority, as to find that you invariably keep your word. It is often better, when you are obliged to threaten punishment, to leave its precise form indefinite, saying, perhaps, "If this offense be repeated, the offender must expect to meet the consequences." The very uncertainty will often deter more than a definite penalty, while it will leave the teacher at liberty to vary the punishment according as circumstances and his judgment may direct.

When it is possible, have your penalty the natural result of the offense. If a scholar is lazy and fails to get his lesson, let him take his recreation hour for learning it. If he injure something belonging to others, let him replace it with something of his own. This is not possible in all cases, but when it is I think a child's natural sense of justice sees the connection and confirms the decision. I am no advocate of corporal punishment, but where children have been in the habit of hurting others, I have seen excellent effects from a reflection of the blows upon themselves. They realize that it hurts, and it usually cures them very quickly.

Make a broad distinction between moral offences, such as lying, and disobedience, and those which arise from the mere overflow of animal spirits. The latter must always be kept within bounds, for the sake of order in the school; but for the former, the punishment should be swift and severe, and such as to make your scholars feel it is something you abhor.

I think you will find it a great assistance, in keeping order and promoting good scholarship, to keep a record of the lessons, punctuality, and deportment, of each day, and at the close of the week seat the scholars in each class according to their rank. If you have blackboard room to spare, write each scholar's name and standing at the close of the week, and let it remain there during the next week. It will form a sort of roll of honor (and dishonor) seen by all who come in, and you will be surprised to find how it will stimulate the sluggish and curb the unruly. I am aware that it will cost you considerable time and labor, but if you are the right kind of a teacher you will not grudge them.

Your children will soon discover that you have a sincere interest in them, and then their regard for your wishes will be your best means of governing, but always hold them firmly. There is nothing which children despise more than a weak amiability which allows them to do just as they please. Keep them busy, and interested, and you will have very occasion for discipline

DALE.

Practical vs. Theoretical.

BY ANNA C. BRACKETT.

There is, perhaps, no stage of thought more unfavorable to real progress, provided one rests in it, than that which has for its countersign the formula of "Either—or." Its vocabulary is made up of words arranged in couples. Each word is exactly defined as being that which the other is not, and so if anything does not seem to belong to one category, it must without question fall into the other. For instance, every thing which is not a part of the *ego*, as the philosophers say, must be a part of the *non ego*. It is true that this is a necessary stage of thought. We teachers feel a sense of satisfaction, and the pupil heaves a sigh of relief when, plunged in the uncertain mazes of a sentence, he at last grasps the one joyful certainty—that whatever words do not belong to the subject must belong to the predicate.

It is well for him that he has arrived so far. He must be able to separate, before he can combine: but we certainly ought ourselves to have emerged from this dual stage of thinking to one of the living unity.

There are no two words which are in educational writings, oftener set thus, as opposed to each other, than the two which stand at the head of this article. We are asked for practical suggestions. Parents object to having their children study Latin, for instance, on the ground that it is "not practical," and all the remarks that we encounter based on this distinction, covertly imply that the theoretical may be very good to while away a leisure hour, or to excite discussion; but the practical after all is the one desirable thing,—the only real thing.

Now reduced to the simplest form, what is it that people wish when they make such remarks? They want us simply to tell them exactly what to do, one thing after another. They wish us to furnish them programmes of recitation, for example, made out, and calculated to a minute, for the whole school session; and when this is done, it has still some of the taint of the theoretical about it, for it simply says that from 9 to 9.30, a. m., there is to be a recitation in arithmetic. We must go farther; we must, as in the first books published in this country on what is called object teaching, give exactly what the teacher is to say, and the question she is to ask. This, however, is still incomplete without the answers of the pupil, in order to show how the teacher practically meets difficulties. Accordingly, having now really struck the practical vein, the lesson reads in this way:

Teacher (holding an apple in right hand).—"How many of you see this?"

Children all raise right hand.

Teacher (holding up a sharp knife).—"I am now going to cut this apple." (Cuts carefully in exact halves.)

Teacher—"What have I done?"

Children—"You have cut the apple."

T.—"How many things had I at first?"

Ch.—"One thing."

T.—"What have I now?"

Ch.—"You have two things."

T.—"Are these two things equal or unequal in size?"

Ch.—"They are equal."

T.—"Each of these is a half. When I cut an apple into two equal parts, each of the parts is called a half."

Ch.—(Repeat, *ad nauseam*.)

Any teacher who attempts to follow out such examples, and we all have large educational books full of them, begins to have a vivid realization of the actual force of the words of the old hymn:

> "As body when the soul is fled,
> As lifeless trunks, decayed and dead."

If she has any life in her, and any earnestness, she works herself out of this, and into some better way of her own. If she has not, she becomes a faithful, but an utterly useless incumbrance in the schoolroom.

But let us escape from this stifling atmosphere of the so-called practical reduced to the point of absurdity.

What is the matter with it? The fact that we have arrived at a negative result, algebraically speaking, shows only that we have assumed some absurd premise, and this premise is solely and simply the assuming that what is theoretical is not practical, and the reverse.

Now the truth is, that trying really to help another teacher by telling just what we do, is like trying to increase the dimensions of an oak sapling by pasting layers of bark around the trunk. Growth can never come in that way; neither can success.

What young teachers want is not methods so much as principles, and they need to go down for these into the region of the so-called theoretical and abstract; and the more theoretical and abstract their work, the more broad will be the life which, blossoming alone in actions, and methods shall inform everything, and make everything alive. I do not mean to say that they should not observe other and wiser teachers; but they should do this, thoughtful more all the time of the principles which underlie and govern the actions, and even the manners, than of the manners or ways themselves.

Especially does this necessity of abstract work exist for the teacher, because education, rightly considered, is not an empirical science. It may be well for the medical student to observe the exact line cut by the knife of the clinical lecturer, as the operation is performed in the worst cases of disease of the hip-joint. Medicine is essentially an empirical science; but it will not do for the student in education to do the same thing, and follow in the same way. He must go down for principles. Out of the region of abstract thinking, can alone come the power to grapple successfully with the practical problems which lie all through his work. His highest function is to mould convictions, not to convey opinions; nor can he ever step off this basis, or lose sight of this aim, without falling into the weakness of arbitrariness and self-will. But this moulding of conviction through which he practically overcomes difficulties, can come only of theoretical work, and he alone is practical who is theoretical.

Let then the educational student who does not see clearly how to overcome daily practical difficulties, give up the vain attempt to conquer by direct attack. Such an effort was made by Hercules, but his strength was of no avail before the life of the Hydra. Let him take them in flank, or, what would be a better figure, let him undermine them by digging down for principles and theories, and when he has mastered them, the practical difficulties which were once great, will seem like toys in the grasp of his toughened thought.

—*New England Journal of Education.*

School Discipline.

SUPT. WILLIAM H. PAYNE.

The strength, or it may be the weakness, of a superintendent or of a principal, is nowhere so clearly shown as in the general discipline of the school. Individual teachers, in cases of extreme difficulty which will occur at intervals, must of necessity rely upon their superior for the enforcement of obedience. At any rate, the head of a school must take some stand in this matter, since pupils or their parents will certainly appeal to him, on occasion, for a redress of wrongs real or imagined.

Teachers will secure that degree of discipline which they are sustained in enforcing, or which they are required to enforce; and any weakness, indecision, or vacillation in the superintendent will immediately show its effects in the school.

For the maintenance of healthy discipline, it is not necessary that there should be great severity in the punishment of offenses. The absolute certainty that the teacher's authority will be upheld, and that, in case of need, the supreme authority in the school will be invoked, is, in most cases, sufficient in itself to hold the evil propensities of pupils in check. On the contrary, a want of firmness will encourage the spirit of revolt, and make necessary a frequent resort to punishments of one kind or another.

The sense of justice is strong even in the case of vicious children. They know that disobedience and wrong doing in general deserve punishment; and, provided the good intent of disciplinarian is manifest, and the degree of punishment does not exceed its just bounds, no feeling of resentment will be cherished towards him who inflicts the penalty. While children soon learn to feel a contempt for a superior who does not insist on respectful obedience, they instinctively admire that manly energy of character which metes out to offenders their deserved punishment. If, however, pupils are punished in anger or beyond measure, it is probable that evil and not good will be done.

Every effort should be made to convince pupils that they will encounter the consequence of their own wrong-doing; that if trouble must come, they, and not their superiors, will be responsible for it. To this end it is often best to defer a punishment, giving the offender chance to mend his ways. In this case there is danger, of course, that the pupil may presume on such forbearance, and feel encouraged to persevere in his evil ways; but the remedy for this is the well-known firmness of the authority which can afford to wait, but which is neither forgetful nor neglectful.

In what has preceded it is tacitly assumed that there are occasions in which corporal punishment is necessary, and therefore justifiable. While I am conscious that many judicious educators discard this manner of discipline, I am free to express my conviction that it is sometimes the teacher's only available resource to secure to the school and to the offender their respective rights. A school must be preserved from disorder and from the contagion of bad examples; and there is no more sacred duty binding on parents and teachers than to require of children prompt and respectful obedience. Children should be exhorted and encouraged in every proper manner to do right, because the doing of right is in itself a comely and virtuous thing; but when exhortation, expostulation, and admonition have no effect, what is to be done? Manifestly, that degree of force should be employed which will conquer obedience. All will allow that a cheerful, voluntary obedience is the truly desirable thing; but is not an enforced obedience to be preferred to disobedience?

Government is positive, not negative; it does not consist in advising them what to do, leaving the matter, in the end, to their own discretion. It assumes that some will choose to do what ought not to be done, and so places before them a penalty sufficient to secure an enforced obedience. In the absence of internal motives to do right, the law holds forth an artificial motive in the form of a penalty attached to violations of prescribed laws.

As a last resort, therefore, force is justifiable. Now force, when actually brought to bear on an offender, resolves itself into some bodily affection. There is either some restraint put upon the usual bodily activities, or, proceeding to extremities, there is an infliction

of bodily pain. This last constitutes corporal punishment as generally understood. If, then, it is allowed that obedience is necessary, it will take place under some one of the following cases :

(1) Spontaneously—without any traceable suggestion —by the unconscious promptings of one's moral nature.

(2) By suggestion, advice, admonition, or warning.

(3) By some restraint on personal liberties.

(4) By the infliction of bodily pain.

Up to this point it is scarcely conceivable that there is real ground for difference of opinion ; but when the subject is considered with special reference to public school policy, two theories may be maintained :

(*a*) An observance of the rules and regulations shall be a condition of school membership ; and when obedience is not rendered as under cases (1) and (2), the offender is to be suspended from school.

(*b*) One of the objects of public school training is to inculcate the habit of obedience and a respect for authority ; and to this end, in cases where obedience is not rendered as above, teachers may restrain the liberties of pupils ; or, if this does not suffice, they may resort to the extreme measure of inflicting pain.

There is no doubt that all teachers would prefer to work under the first plan : it would make the task of governing infinitely easy. In fact, there would be no such thing as school government, in the proper sense of the term ; for, whenever pupils did not yield a voluntary obedience, they would cease to require any positive direction by the teacher. But it is quite as certain that most parents wish to place upon the teachers of their children the task of securing obedience, even at the expense of inflicting needed corporal punishment. In general, there is nothing against which parents more heartily protest than the trouble and vexation of correcting children for offenses committed in school. "Have they not enough to do to attend to the correction of their children for home fault? Should not teachers be competent to govern their pupils? What fitness have they for their office, if they can not enforce obedience when occasion requires?"

This is the current theory held by parents; and until there is a decided change in public sentiment, I do not see how the schools can renounce the duty of securing obedience even at the expense of corporal punishment. Teachers would gladly be relieved from such a disagreeable task. It is not from any fondness for the punishing of pupils that they persist in it, but because they believe it to be a duty imposed on them by the public whose servants they are. But they may rightly demand at least a partial release from this most ungrateful duty. In cases where pupils persist in wrong-doing, uninfluenced by mild measures, parents should be asked to choose between correcting their children themselves and submitting them to such discipline as the teacher may judge necessary. Two good results would come from this course : responsibility for the bad conduct of children would be placed where it in great part belongs, and school authorities would be shielded from any imputation of needlessly resorting to corporal punishment.

Is it not possible that those who are so radically opposed to corporal punishment make the mistake of looking on human nature as it ought to be, and not as it actually is? Most children are not in that moral condition in which good conduct is determined by the unconscious impulses of a noble nature ; and but very few teachers have reached that degree of perfection whereby they can govern pupils by "moral suasion" alone. It is true that the best teachers have least occasion to employ force ; perhaps it is true that teachers have good success just in proportion as they can govern by tact, sympathy, or affection ; but it does not follow from this that the more imperfect model of discipline should be abandoned. If teachers are required to secure obedience, they should do it by the mildest means at their command ; but they must do it at all hazards. Here, as elsewhere, human imperfection must be recognized as a fact ; and while we are required to do a certain work, we must be allowed to use our own tools, even though they are imperfect. In other words, it is better that a school should be governed by harsh methods than not be governed at all.

As a general rule, children who are well governed at home occasion no trouble in school ; while most of the "incorrigibles" who vex teachers' souls are the product of parental mismanagement. There is but little hope, therefore, that any reform will be worked in such cases by remanding offenders to home discipline. By reason of the strong and almost inexplicable influence which is exercised by numbers, it sometimes happens that children who are models of propriety at home are tempted into bad conduct in school. Such cases, in general, can be cured by co-operating with the home authorities : and if all cases of discipline were of this class, the rod might be banished from the school-room.

As the teacher is required to maintain good order in the school-room, so the superintendent or principal must secure the orderly movements of the pupils throughout the building and on the grounds ; and the general appearance of a school while pupils are entering or leaving a house is a very fair indication of the managing ability of the responsible head. If the stairways are broad and straight, there need be no serious difficulty in maintaining good order ; but if, as is too often the case, they are narrow and crooked, the difficulties are greatly increased. Halls and stairways may be so constructed that pupils can be seen by their teachers during almost the entire march up and down ; but it is often the case that they are out of sight after the first few steps ; and under such circumstances, means must be taken to secure a strict oversight of the halls by the teachers in general.

An observance of the following rules will contribute very largely to the maintenance of good order in passing to and from the rooms :

(1) Definite times of admission should be arranged, so that the several schools may not interfere with one another while going out. Thus, the schools on the first floor should be dismissed first, and their relative times of dismission should be so arranged that all interference may be avoided.

(2) If there are stairways both in front and in rear, certain schools should invariably have their exit by the first and the others as invariably by the second.

(3) If the stairways are wide, boys should invariably pass down by one railing and girls by the other ; but if they are narrow, the boys should pass down first and then the girls.

(4) Preparatory to passing down, pupils should be arranged in the halls in single file, and at a given signal the column should move.

(5) Pupils should invariably walk while moving up and down or through the halls, and all talking and whispering should be avoided.

(6) When pupils enter the building, they should follow the same route as in going down, and should proceed directly to their rooms.

(7) When pupils pass from the building, they should leave the premises at once ; they should not be allowed to wait on the steps or at the gate.—*Chapters on School Supervision.*

THE JOURNAL OF EDUCATION

QUEBEC, MARCH, 1876.

Our attention has been called by the Secretary of the Protestant Board of Examiners, Montreal, to an important error in the Educational Almanac for 1876, published in January last, in connection with this Journal. The Rules and Regulations for the Examination of Candidates for Teachers' diplomas, enact: that Members of the Boards of Examiners shall meet on the first *Tuesday* in the months of *February*, *May*, *August* and *November*. In the Almanac the meeting for February was advertised for a Wednesday, those for May and November, for Thursdays, and that for August, on the first Tuesday, the latter only being correct. Teachers and Examiners and others concerned will please act according to the Regulations, the meetings in question should be held on the first Tuesday in May, August and November, and not as stated in the Almanac. We thank the Secretary of the Protestant Board, Montreal, (M. Gibson) for calling our attention to this error which has occurred in a most unaccountable manner.

OFFICIAL NOTICES.



APPOINTMENTS.

PROVINCIAL SECRETARY'S OFFICE

Quebec, 24th February, 1876.

His Excellency the Lieutenant-Governor in council has been pleased to appoint the Honorables Pierre J. O. Chauveau, Q. C., L. L. D. Thomas Ryan, Senator, Alfred Basile Routhier, J. S. C., and Cyrille Delagrave, Q. C., Louis Léon Lesieur Desaulniers, M. D., Joseph Lachaine, M. D., and François Painchaud, M. D., Esquires, to form the catholic portion of the Council of Public Instruction of the Province of Quebec, jointly with His Grace the Archbishop of Quebec and their Lordships the Bishops of Montreal, Three Rivers, Rimouski, Sherbrooke, Saint Hyacinthe and Ottawa, who form, by law, part of the said Council, pursuant to the requirements of an Act respecting Public Instruction, passed in the last session of the Legislature of this Province.

His Excellency in council has also been pleased, under and in virtue of the same authority, to appoint the most Reverend James William Williams D. D., D. C. L., Lord Bishop of Quebec, the Honorable Charles Dewey Day, L. L. D., D. C. L., the Honorable Christopher Dunkin, L. L. D., D. C. L., the Reverend John Cook, D. D., the Honorable George Irvine, Q. C., M. A., D. C. L., the Venerable Archdeacon William Turnbull Leach, D. C. L., L. L. D. the Honorable James Ferrier, senator, and J. W. Dawson, Esquire, M. A., L. L. D., F. G. S., F. R. S., to compose the protestant portion of the said Council of Public Instruction.

Ministry of Public Instruction.

Quebec, 9th March, 1876.

BOARD OF EXAMINERS.

The Lieutenant-Governor has been pleased, by order in council, dated the Twenty second of February last, to appoint the following gentlemen, members of the board of examiners, empowered to give certificates of capacity to candidates for primary school diplomas within the limits assigned to the Bonaventure board, to wit:

The Reverend François Adeline Blouin, the Reverend J. Gagné, Pierre Clovis Beauchêne, Esquire, the Reverend François Gagné *vice* the Reverend Pierre Saucier, the Reverend John Wells, *vice* the Reverend George Milne, the Reverend J. Josué Lepage, *vice* the Reverend Antoine Chouinard, and Henri Josué Martin, Esquire, *vice* Etienne Martel, Esquire.

SCHOOL COMMISSIONERS.

County of Berthier, Saint Gabriel de Brandon—M. Maxime Paquin *vice* M. Amable Sylvestre, deceased.

County of Megantic, Saint Pierre de Broughton—The Reverend Louis Fournier, continued in office, and M. Jean Lacasse, *vice* M. George Giroux.

POETRY.

Sunset.

J. F. McDonell. (*)

Tis joy to gaze upon the west,
Where sinks the glorious sun to rest,
Upon the sleeping ocean's breast—
In purple even.
When crimson clouds are backward rolled,
Like some gay banner's broidered fold,
From the wide arch of shaded gold—
As bright as heaven.

The splendor of the evening rays
Upon the rippling water plays,
Far brighter than the jewel's blaze—
Of rich gem's Glory.
The Island summit crowned with pines,
Bathed in its gay tints far outshines
The lustre of all fabled shrines—
In song or story.

And gently still the twilight fades,
Beneath the twisted old oak's shades,
And the dim forest's leafy glades—
Are sunk in shadow.
But lingering last the faint grey light
Withdraws its ray—once dazzling bright—
From mountain's crest and rocky height
From hill and meadow.

Thus when we glide unto our rest—
O may it be when in the west—
The sunset gilds the Ocean's breast—
In purple even.
When crimson clouds are backward rolled
From the wide arch of shaded gold,
On some such eve may we behold—
One glimpse of heaven!

MISCELLANY.

Clever Children.—An exceptionally sharp and intelligent child is acceptable to most teachers, who feel that they have in it material which, if properly handled, cannot fail to do them justice. They know very well, therefore, that it is worth their while to devote a great deal of care and attention to it, while, on the other hand, they are perfectly assured that a dull child will not, apparently at my rate, repay the labour which may be bestowed upon it. This being so it is, perhaps, natural that

(*) "It is to be regretted, says the Editor of *Selections from Canadian Poets*, that one who can write so musically, and with such deep appreciation of nature's beauty and power, should renounce the muses to the extent M. McDonell has latterly done". Mr. McDonell was a native of Quebec, born in 1838, he was member of the Lower Canada Bar, but devoted himself to a journalistic career and was for a long time connected with and finally Editor of the leading English paper in that City, "*The Morning Chronicle*"; but when scarcely thirty years old, death cut short a career which promised to be a most brilliant one, and which would have placed Mr. McDonell's name high up on the roll of Canadian Litérateurs.

many teachers are led to neglect dull scholars to the profit of bright ones. At the same time it is certain that those teachers who do this fail to appreciate the importance and responsibility of their office, and are guilty of manifest injustice. Moreover, though it is true that dull children suffer when they are neglected, it is by no sure that the majority of bright children repay, permanently, the extraordinary time and attention which are bestowed upon them. It is a significant fact that a large number of brilliant boys develop into the reverse of brilliant men, while many are injured in health, if they do not positively break down. The reason of this is that they are pressed beyond their powers by teachers who are anxious to establish reputations, and who, in their desire to make their pet scholars shine, render the latter's existence a joyless one. Nor is the fault all the teacher's upon the shoulders of certain parents themselves resting a good deal of blame on account of the mischief that is being wrought. These parents second the efforts of the injudicious teachers by keeping their children grinding at the mill when they ought to be indulging in those exercises and recreations which, while strengthening their physical nature, would also do no little good to their minds. Such injudicious persons can see the cheeks of their children paling, and their bearing continually displaying weariness and lassitude, but, in the hope of causing the unhappy youngsters to win an empty honour, they pause not. Perhaps, the honour is won; the children are flattered; and the teachers are advertised. But at what cost is all this done? The parents have the mortification of seeing the children, after they have reached a certain point, come to a sudden stand-still, while slower travellers pass them and push onward, and of learning that a great deal of what the children have been crammed with is positively useless. Moreover, the children are, in not a few cases, rendered incapable of original thought, their receptive organs being fostered at the expense of more useful ones. Many, no doubt, rise superior to the depressing influences to which they are subjected, but even of these a large proportion abandon their studies upon the first opportunity, and even look back with disgust upon their school days, and regard with aversion all that pertains to learning. It would, then, be well if parents and teachers treated children as children, remembering that it is unwise in the extreme to place severe strains upon minds before they have become matured.

Now, most teachers teach in order that they may live. It is, therefore, natural that they should avail themselves of any opportunity to advertise their merits. In the competitive examinations for children which have become so common of late years they see a means of advertising themselves; and so long as the same bears the stamp of public approval they will readily have recourse to it. Perhaps if people would cease to believe that the teacher, whose pet pupils shine most brilliantly at these competitive examinations, is the best teacher, the cramming system would fall somewhat into disrepute. But so long as many persons irrationally conclude that one or two brilliant show scholars indicate that all those who are under a teacher's care must be exceptionally well treated, it is useless to look for a very much better state of things than now exists. It is time, therefore, that people took a more reasonable view of this matter that they have hitherto done. It should be borne in mind that schools, the one or two exhibition members of which are constantly distinguishing themselves, the world being carefully apprised of the fact, are frequently very indifferent through the causes which we have already indicated, so far as the bulk of the scholars are concerned. In a general way, the best schools for a child of ordinary capacity are those in which the pupils are not expected to engage in a national rivalry, nor to develop extraordinary powers, but are made to do their duty, are taught to realise the end and aim of learning, are instructed how to apply the knowledge which they receive—this is seldom done in regard to those who are simply "crammed"—and are spurred on when necessary, due regard meanwhile being paid to their pleasures and physical education. It cannot be too well remembered that a wise teacher—who is neither vain nor desirous of advertising himself—will rather hold back an unduly precocious child than urge it forward, for he remembers that early and unnatural growth in nine cases out of ten involves early decay, if not something worse.

It is a satisfactory sign that many parents are beginning to see the danger and folly of forcing the immature mind. There is, therefore, reason to hope that those academies in which the brilliant scholars are forced while the dull ones are neglected, will gradually fall into disrepute. Meanwhile, teachers will do well to recognise the healthy change which is coming over public opinion, and act accordingly. It will be their own fault if the present race of them some day wake up and find that their places have been taken by educators of a more approved and useful order than themselves.—*Scholastic Advertiser.*

Nicknames.—Every one who has reached the meridian of life without such an appendage must surely congratulate him or herself on having escaped the burthen of a nickname. We say burthen advisedly, for it is surely little else, when a shrivelled and elderly spinster is universally called "baby," or a stout and florid matron is found to answer to the equally incongruous appellation of "Fairy." Probably long use has dulled the victim's feeling; still, even so, it must, one would think, occasionally strike them how truly absurd such infantine names must sound to a stranger, who, seeing them for the first time in the evening of their days, can find no trace of the early charms that made the graceful endearment appropriate. We have mentioned "baby" and "Fairy" as being in some sort representative nicknames common to the experience of most of our readers; but everyone's acquaintance will at once supply a host of others—of "Kittens" who have long since become demure cats; of "Trots" who have seen many a weary year pass since the name could have been appropriate; and of a hundred other instances too common to require remark. As applied to women these nicknames lose their point and application from being given for some infantile grace that can at its best be but transitory; while in the case of men, they generally owe their origin to some nursery trick or schoolboy escapade which might well be suffered to sink into oblivion. Feminine nicknames, we may observe, are, as a rule, almost invariably complimentary; while masculine ones are almost as invariably the reverse. But the complimentary appellation, so pretty and so appropriate at sweet seventeen, does but call attention to the changes wrought by the scythe of ruthless Time between that blissful age and five and-forty; while certainly the uncouth cognomens usually bestowed on men hardly sound dignified when addressed to them by their old companions in their children's hearing. And is it not often the case that, when questioned by his boys and girls as to the origin of his nickname, the father does not particularly care to recall the circumstance which saddled him with "the incubus"? Such being the case, is it not wonderful that parents should not steadfastly set their faces against nicknames for their children? A very little firmness would convert nurse's "Missy," and "Pussy," and "Baby," into Clara, Edith, and Edward. But the firmness is not forthcoming, and the children grow up almost without knowing the sound of their own names; for if Edward (by the strong protest which a boy does occasionnally make against an infantile appellation as injurious to his dignity) succeed in ridding himself of the name of Baby, he is tolerably certain to be called Ned or some other equally objectionable abbreviation. There seems to be an impression—indeed we have more than once heard it gravely argued—that it sounds "cold" and harsh to call a child simply by its Christian name, and nicknames are used as terms of endearment. This might be very well if the use of the pet name could be by any means confined to the immediate relations of the child; but this can never be the case. Friends and even the nearest acquaintances grow to know the children only by the names they are habitually called, so that at last, for purposes of identification, it is not impossible to read in an announcement of a marriage in the *Times*—John Jones, Esq., to Edith Mary (Dot); and William Brown, Esq., to Catherine Matilda (Trottums), daughter of G. Green, Esq. Is not this too absurd? Nevertheless, it is of constant occurrence. It seems to us utterly incomprehensible why Trottums, which we should imagine all must agree to be an ugly cognomen, should be considered more affectionate or endearing than Catherine. Besides, to take a graver view, why should the Christian name—the name by which the child is in holy baptism enrolled among the young soldiers of the Cross—be habitually and systematically ignored? The habit of abbreviating names, though not open to the same absurdities as that of nicknames, is also both ugly and ridiculous. "Oh, life is not long enough always to call the child Henrietta!" says a young mother in extenuation of her inveterate habit of calling her Etta. Then why give the child a long name? Why not christen her Jane or Emma, or something else that will economise such precious time? Of course, we are not speaking seriously—the busiest among us will hardly do much more work in the twenty-four hours because we call our children Ned for Edward, Winny for

Winnifred, Kit for Christopher, or Flo for Florence. But, although we have said so much against nicknames, there is, we must confess, one species of *noms d'amitié* for which we have a considerable weakness. These are the names given us in natural life by our own chosen friends; but they differ materially from the sobriquets of childhood. They are never used for salutations and greetings in the market-place—indeed, they are generally unknown save to the two friends themselves, and any one who might accidentally hear the name would be guilty of an unwarrantable impertinence in making use of it. It is true that these *noms d'amitié* of natural life are confined almost exclusively to women; but it is not uncommon to meet one possessed of many such appellations, each given to her and used only by a different friend. It may be safely assumed when we meet such an one that she has, to use a common phrase, "something in her," something which touches the mind of each of her friends in a different manner, and which each endeavours to express by the term of endearment she elects.—*John Bull.*

German Workmen.—The German makes a good colonist because he is frugal, patient, and hardy; but he seems to need a transplantation to another soil to shine forth in all the excellence that not unfrequently becomes his. The German workman at home is dilatory, unpunctual, slow, and often extremely "bungling" in his work. There is not the same competition as with us; if he do not choose to hurry himself, you must abide his pleasure; he is the obliger, you are the obliged. You give him a model, and he executes his copy not amiss; it only falls short of supreme excellence; a little more finish, and it would have been absolutely well done. The German labourer is a marvel of heavy artfulness; he seems always to have something to do that interferes with continuous work, either he has to spit upon his hands, or to adjust his raiment, or to take a dram, or have a "crack" with a comrade, or pick a quarrel with an enemy; in short, he is inventive in this respect to a degree that his general stolidity would never lead you to suspect. The writer remembers watching throughout a period of some months an English "navvy" who had command of a gang of Germans engaged upon some waterworks. Abuse flowed freely from the lips of the stalwart Briton, and though he spoke an unknown tongue, the desired effect was produced; the instant, however, his attention was withdrawn, or his amenities ceased, the stolid crew abandoned all active labour, and became passive spectators of the general scene. "I'd liever have one o' ourn nor five on 'em," said that British "navvy," in a tone of rueful indignation, one day, to a sympathetic auditor, who was watching the slow progress. Even the stalwart frame, the loud voice of the man, and the free use of his choice vernacular, had ceased to have its effect, and the gloom of despair hung heavy on his brow. Yet we know that two-thirds of the sugar bakers, bakers, and tailors in London are German, and that America speaks largely the language of Hans Breitmann. It seems that the sight of incessant activity and untiring energy universally prevailing around is necessary to arouse the German, and make him shake off the lethargy that otherwise possesses him. Crimes of violence are of very rare occurence in Germany; the German is not cruel, he does not murder, he does not assassinate, he does not beat his wife, or kick her with hob-nailed shoes; he does not love blood. Bloodshed is distasteful to him, unless, as in the Franco Prussian war, it be his duty to shed blood, then he consents to butcher and be butchered (as during the awful days of Gravelotte and Mars-la-Tour) with almost automatic endurance. But while we allow for the difference of temperament that distinguishes the Teuton from the Celt, we must concede that education counts for something in this matter. Educate the masses, and they will not love, as the French lower orders do, to welter, when excited, in the blood of their fellow men, to lick their lips in savage lust to lap it again. The German is generally rough, and sometimes brutal, but humanity, on the whole, prevails, and the brute in him is less than the man. Indeed, that sort of "sentiment" which is so marked a characteristic of the modern Teuton, is to be found even in the *dramatis personæ* of the police reports.—*Fraser's Magazine.*

Beethoven.—Beethoven used to sit for hours at the piano improvising the thoughts which he afterwards jotted down on paper, and subsequently elaborated into the music with which he astonished the world. If he discovered that he had been overheard at such times,—as happened once when Cipriani Porter called upon the great composer, and was shown into an adjoining room,—he was incensed to the highest degree. In another mood, and especially after he had become deaf, while working out a subject in his mind, he would leave his house at night or in the early morning, and walk for many hours through the most remote and solitary places, through woods and by lakes and torrents, silent and abstracted. In this way he sometimes made the circuit of Vienna twice in a day, or, if he were at Baden, long excursions across the country. When engaged on his magnificent "Sonata Appassionata" he one day took a long walk with Ferdinand Ries, his pupil. They walked for hours, but during the whole time Beethoven spoke not a word, but kept humming, or rather howling up and down the scale. It was the process of incubation. On reaching home, he seated himself at the piano without taking off his hat, and dashed into the splendid finale of that noble work. Once there he remained for some time, totally regardless of the darkness, or the fact that he and Ries had nothing to eat for hours. His appearance became perfectly well known to people of all classes, who exclaimed, "There is Beethoven," when they saw him; and it is related that once, when a troop of charcoal-burners met him on a country path, they stood on one side, heavily laden as they were, to let him pass, for fear of troubling the great master's meditations. When composing in his own room at home, he would sometimes walk about in a reverie, pouring cold water over his hands alternately, from jug after jug, till the floor of the room was inundated, and the people came running upstairs to know the cause of the deluge. At his death he left, besides his finished works, a quantity of rough sketches, containing doubtless the germs of many more works, which never passed the stage in which they appear there. The first drafts of his well-known compositions show the successive alterations which their subjects suffered before they pleased him; and these form a most interesting study, as exposing his manner of working. One of his sketch-books has been published *in extenso*, and, besides a host of matters of minor interest, it contains three separate drafts, at length, of the finale of one of his symphonies—a striking proof of the patience with which this great and fiery genius perfected his master-pieces. Even when completely finished, and perfected to his own satisfaction, his MSS. presented many difficulties to the reader, and his copyists and engravers are said to have had a hard time of it. In one of his letters, in which he gives his publishers the corrections of some proofs of a stringed quartett, he concludes by saying that "It is four o'clock. I must post this: and I am quite hoarse with stamping and swearing!" The handwriting of Beethoven was beautifully neat, and his manner of correcting the proofs of his printed works excessively careful and painstaking The same may be said of his very extensive correspondence Few men, probably no composers, ever wrote more letters—they must have been a tremendous tax upon his time and patience—and yet the smallest note is a accurately expressed and carefully written as if it were a State paper. In composing he made few sketches, but built up the whole in his mind, and then, when writing down the score thus mentally prepared, rather invited his friends' conversation than otherwise. "Pray, come in," said he on one such occasion, "I am merely copying." On the other hand, he was fastidious to a fault in allowing his music finally to leave his hands for the publisher. The beautiful Italian Symphony was kept back by him till his death the "Walpurgisnight," nearly as long and some of the finest numbers of "Elijah" and the "Hymn of Praise," were added after the first performance.—*Macmillans' Magazine.*

Patent Medicines Containing Poisonous Drugs.—It is quite clear that some steps must be taken to check the sale of patent medicines which contain poisonous drugs. It is now an almost everyday occurrence to read of a infant killed by an overdose of some soothing mixture, or of an adult poisoned by the use of some patent sedative. Patent medicines claim to possess all kinds of wonderful properties; they are in fact, "heal alls," and so long as the world goes round there will be thousands of people who will put faith in such mixtures. While they contain no injurious ingredients no one need object to their being vended; but when we find that narcotics are largely employed in the manufacture of many of these medicines, and are sold under high-sounding names, it is time ignorant people were protected against them, the more especially as the fact that such medicines cannot be sold without bearing the Government stamp is in itself calculated to inspire confidence in the public, who naturally consider that the State would not thus pointedly legalise the sale of dangerous drugs.

In the interests of the public, and for their own credit, it behoves the legislature to take action in the matter, or we shall continue to have to account for a large and unnecessary waste of human life. Why not make it needful (asks the *Observer*), as in France, for every patented medicine to have its composition registered, so that the profession, at least, may know of what it consists?

Poisonous Sweets.—The practice of flavouring sweets with chemical, instead of real fruit flavours, is most pernicious. Pear, pineapple, and other flavours are produced from butyric acid, instead of from pears and pineapples themselves. Chemical flavours are simply poisonous, and ought to be interdicted wholly, while real fruit flavours, for the most part, are perfectly safe. Some samples of vanilla, however, now so frequently used for flavouring, owing, it has been said, to the circumstances that the beans brought from Columbia are covered, as Professor Shroff has shown, with the acrid oil of the *anacardium*, have been productive of very unpleasant effects. All the French medical journals have taken the matter up, and M. Moures has published the particulars of nine cases, and Dr. Papilland others, wherein actual poisoning ensued from partaking of ices which had been flavoured with the vanilla here spoken of.

The Emperor Bell—The third largest bell in use in the world was recently placed in the southern tower of the cathedral in Cologne, Germany. Three castings were made, of metal obtained by melting French cannon captured during the Franco-Prussian war. Two were unsuccessful, but the third was perfect. The twenty guns used weighed 50,000 German pounds, and to these were added 80,000 lbs. of tin. The time of melting was but ten hours, and twenty-nine minutes sufficed to fill the mould. The cooling continued for four weeks. The bell is 10 ft. 8 in. high, and 11 ft. 2 in. in diameter. Its total weight is over 25 tons. Of the larger bells in existence, two, those of Moscow, weighing respectively 193 and 63 tons, are broken. Pekin has one bell weighing 53 tons, and Novgorod, Russia, one of 31 tons—both of which are in use.

A word to boys.—Parents should, by repeated admonitions and friendly advice, strive to instil into the minds of their boys the idea, that no matter what their antecedents have been, no matter what their present condition is, their future is to a great extent within their own control—that in a young and flourishing country like Canada, where there is freedom for all, with ample scope for everybody's talents and ambitions, and where true merit is the talisman of success, there is a bright prospect before every youth who starts out in life guided and governed by sound principles and honest intentions. The facilities for securing the untold advantages of education are nowhere else so good or abundant; there is, therefore, no excuse for that Ontario boy who grows to man's estate in this country and yet must plead ignorance. Better Common Schools are not to be found in the world, and they are open to every one, without distinction of class, creed or colour. The especial importance of possessing at least a groundwork on which to rear the structure of life and success, is not to be over-estimated,' and no better foundation exists than that furnished by the solid rock which can be hewn out of the rich quarry of a good English education. The base may be rugged and less shining than the builder would like, but it is there, come what will, and, as time passes, may be polished to correspond with the more showy edifice as it rises symmetrical with the advantages the occupant may possess in after-life to adorn and beautify it. We dwell upon the necessity which every youth is under to store his mind with all the sound and honest knowledge that he can grasp. No better indication, perhaps, exits of the future a boy intends to carve out for himself than is afforded by his efforts to secure every particle of education he can. That lad who thirsts after information, and has parental or friendly advice to guide him into the true paths, may be esteemed as being already on the high road to success, if not to fame, for in no respect is that prognosticating proverb, that "the boy is father to the man," more true than in this. Every boy has or should have an innate ambition to become something better than he is, but he may rest content that his efforts will be hampered, if they do not result in actual defeat and disappointment, if he have not the rudiments of education. Many noble men, whose younger days were contemporary with those when there were no schools, and, who, consequently, never had adequate instruction, have struggled against apparently overwhelming odds, and by indomitable perseverance have risen above their fellows, who had had better opportunities than they; do not they afford splendid examples for the growing generation? Self-made and self-taught as they are, they grieve over nothing so much as the lack of advantages in their youth. We have them by scores in Canada, and illustrious they are when regarded in the light of their intrinsic qualities. The youth of to-day, can make no excuses when they reach manhood; it may be that circumstances were adverse to their attending school, but they must know that not only are they protected by law, but are by law required to go to school so many days in the year. There is no lad but can go to school, if he from his heart wishes it; if others strive to prevent him, he has a friend in the law if not in flesh and blood. Canada needs thousands of intelligent farmers, tradesmen, mechanics, sailors, soldiers and even labourers, as much as learned lawyers, doctors, clergymen, and statesmen, and to every Canadian boy she holds the door of entrance wide open. Where there is no mental training, mere manual skill goes for little, but where both are combined then prospects for promotion are good, and once started what is to stop a man from ascending to the top of the ladder? These sentences are written with a desire to stimulate the lads who may read them to lose no time in selecting some honourable business, trade or profession, and then set themselves resolutely to work to achieve success in it. The youth who has no idea of what his future is to be is indeed a pitiable object, though his parents' or some one else's wealth at presnt seem to ensure him from future need or want. Let every boy lay aside such or any other hopes, which are often of the most delusive character, and resolve to rely on his own merits for his success in life, recollecting that it will be all the more creditable, and not forgetting that he must lay his foundation now.—*Hamilton Times.*

How house air is spoiled—The following will show how the air in houses becomes contaminated:—

1. An adult person consumes 34 grammes of oxygen per hour, a gramme being equal to 15 grains.

2. A stearine candle consumes about one-half as much.

3. An adult gives off 10 grammes per hour of carbonic acid. A child of 50 pounds weight gives off as much as an adult of 100 pounds weight.

4. A school-room filled with children will, if not well ventilated at the beginning of the hour, contain 25 parts in 1,000 carbonic acid, at the end of the first hour 41, and at the end of the second hour 81.

5. The air is also spoiled by the perspiration of the body and by the volatile oils given out through the skin. An adult gives off through the skin in 24 hours from 500 to 800 grammes of water mixed with various excrements, poisonous if breathed.

6. A stearine candle gives off per hour 0.4 cubic feet of carbonic acid and 0.03 pounds of water.

7. Carbonic oxide is a much more dangerous gas than carbonic acid, and this obtains entrance to our rooms in many ways—through the cracks in stoves and defective stovepipes, or when the carbonic acid of the air comes in contact with a very hot stove and is converted into a carbonic oxide. The dust of the air may, on a hot stove, be burnt to produce it; or it may flow out from gas-pipes when the gas is not perfectly consumed.

8. Another form of air injury is the dust of a fungus growth which fills the air in damp and warm places. We call it miasm from a want of a true knowledge of its character.

9. Accidental vapors are the crowning source of air poisoning. These are tobacco-smoke, kitchen vapors, wash-room vapors, and the like.

10. When we heat our houses and close them from outside air the heat turns the mixture into a vile mess unfit for breathing. The only remedy is ventilation. Now that it is cold weather, and our rooms are closed from the currents of outside air, let us look after the matter thoroughly and do our best to prevent injury to ourselves from polluted air.

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On the Training of Young Teachers.

BY REVD. R. H. QUICK, M. A., Professor to the College.

(Delivered at the College of Preceptors, 17 Feb., 1876.)

IT would seem as if this "best of all possible worlds" was fast becoming better or worse (I won't determine which) by the steadily increasing strength of public opinion. Yes; the sceptre has passed into the hands of Mrs. Grundy; and our first inquiry in all cases should be, "What will be *her Majesty's* views on the subject?" Now, of public opinion regarded as force, I have a very high estimation; but of public opinion regarded as light, I am sorry to say I have quite the opposite.

Although I believe it was announced that this lecture would be open to the public, I take for granted that the public has prudently kept away, and that I have a strictly professional audience. Professionals always incline to a depreciatory view of public opinion. They are wont to look upon "the public" as a blind Samson, a good fellow enough so long as he will go on grinding their mill for them, but extremely objectionable directly he takes to pulling the house about their ears. So to my professional audience I may say what I like of "the people," and even quote a certain poet, who calls it "a herd confused, a miscellaneous rabble," who decide simply "as one leads the other."

"Th' intelligent among them and the wise
Are few."

Those who do not recognise my quotation will think I have found an English Coriolanus; but these are the words of the republican Milton.

Now in some cases this strong but ignorant body feels its own ignorance, and is content to be led by the hand —possibly even by the nose. It grumbles indeed at the lawyers; but they make fun of it, and get in into such a pickle that at last it excites the compassion even of the heads of the profession themselves, and men like Lord Selborne and Lord Cairns turn law reformers. It grumbles at the doctors, but it swallows their physic and pays their fees. But it adopts a very different tone with the clergyman and the schoolmaster. Here public opinion asserts its rights, and is not to be hoodwinked by any of your professional hocus pocus. There is no man so means as not to think himself the equal of the parson in theology and of the schoolmaster in education. "Every Englishman has a right to his opinion." Of course he has. He has also a right to shut his eyes when he is crossing Cheapside; and if his opinion happens to be erroneous, his right in the one case is just as valuable as in the other.

All teachers have had to do with a kind of public opinion in their pupils; and they will have found that the one thing which the public, young or old, steadily and doggedly refuses to do, is *to think*. One finds this sometimes with beginners in geometry. They are ready to adopt any statement you like, if they fancy they can defend themselves with it and escape thinking. You may get them to say that all angles are equal, or that two straight lines always enclose a space—anything, everything, rather than think what they are saying. Grown public opinion is perhaps not quite so receptive as this. But it has various ingenious ways for escaping thought, the handiest being to catch up some stock phrase, and without considering its limitations, or even its exact meaning, to bring it in on all occasions as an axiom from which there can be no appeal. Many hundred years ago some one, actuated no doubt by the purest philanthropy (for he evidently wished to prevent the writing of bad poetry), invented one of these phrases, which seems capable of doing any amount of duty—*the poet is born, not made*. Upon this public opinion

has harped like a dotard ever since, without caring to know exactly what it meant. It is, in fact, truth or nonsense, according to the way we explain it. Horace long ago said all that was to be said, when he told us that for good poetry two things were needed—native talent and literary training. Native talent may, indeed, produce some genuine poetry (such, *e. g.*, as the songs of Burns) without literary training; but most of our best poetry—Milton's, *e. g.*, and Tennyson's—has needed long toil at the art of versification. If, then, this proverb means that the writer in metre cannot be a poet without native genius, the words are perhaps obscure, but sensible. If, on the other hand they are taken to mean that in poetry natural talent is everything, literary training nothing, the words are simple nonsense.

But the public, having found this phrase so very useful, is naturally anxious to enlarge its area. So we now have the parrot cry, "The teacher, like the poet, is born, not made." And this axiom is quoted directly any attempt is made to procure training for teachers. But I would venture to suggest that the cases of the poet and the teacher are not in all respects parallel. The proverb, "The poet is born, not made," may really be useful in discouraging people from writing badly in metre. There is not the least necessity for their writing in metre at all. But the practical value of the saying, "The teacher, like the poet, is born, not made," is hardly so obvious. In point of fact, a very great number of persons must teach; and I do not know what the public expects to gain by saying to these persons, "The teacher is born, not made. If you are a born teacher, you will teach well; if you are not, you will teach badly. Don't trouble yourself about training, it will make no difference to you." The effect is, of course, that training is neglected; for young teachers who fear the trouble, and still more the expense, of training, are not likely, to seek qualifications which every one seems to think useless, or at least unnecessary for a certain number of persons to write in metre, the public would say, "Let these persons make the most of such aptitudes as they have. Let them get a practical acquaintance with different kinds of metre. Let them study the best models. Let them practise metrical composition by exercises not intended for the public eye, and let them submit these exercises to judicious critics, and profit by their remarks." This, I suppose, would be the advice given to persons fated to write in metre. No one would think of saying to them: Everything depends on nature: if you are a born poet, you can't write badly; if you are not, you can't write well. Never mind learning your art; it will make no difference to you." And yet folly like this is often contained, or at least implied, in what the public says about the art of teaching.

I hope I shall not seem to have wasted your time, and to have been thrusting at a man of straw. I have so frequently heard this need of training disputed, even in high quarters, that I know this delusion to be no man of straw, but a foeman worthy of all the steel we can manage to put into him.

There is another foe, a sort of twin giant to the last, who also stops the way to improvement. It is often said that, if we train teachers, there will be a great danger of making them theoretical; and theoretical with the British public means unpractical. There is a piquancy about paradox that always commends itself to public opinion. The public is the genuine believer, who delights to believe because the thing is impossible. And so this same public opinion is inclined to maintain that a man is, on the whole, the less likely to do a thing well from his having learnt all about it. This peculiar antithesis between knowing and doing was not invented in this country, though it seems most at home here. We know the old story of the two architects at Athens. They were rival candidates for employment, and the Athenian populace had to appoint one or the other to build a temple. The first architect made a great speech, in which he proved that he knew all about architecture, and gave reasons why one particular kind of building was best for the site; then he went into details, and described the proposed edifice. His speech made a great impression, and the audience were anxious to know how his rival would cap such eloquence. But the rival was equal to the occasion. When his turn came, he rose and delivered a very short speech in these words. "What the last speaker has *said*, I will *do*," and he was immediately appointed architect by acclamation. He had proved himself a shrewd man, no doubt; but he might, after all, have been very ignorant of architecture, and the Athenians may have blundered in their choice, as they did in the antithesis implied in it.

Perhaps this assumed antithesis between knowledge and practical ability is best stated by Iago, in his account of "a great arithmetician, one Michael Cassio, a Florentine." This preferred rival of his was a theorist: he

> "never set a squadron in the field,
> Nor the division of a battle knows
> More than a spinster; unless the *bookish theorick*,
> Wherein the toged Consuls can propose
> As masterly as he; mere prattle without practice,
> Is all his soldiership."

But Othello was perhaps not less discerning than Iago in this matter. Iago himself had no turn for theory. He had seen service, had probably shown personal bravery, and had acquired the art of performing by rule of thumb all the ordinary duties of a soldier. But the humdrum soldier—blunt, honest fellow, as Othello thought him—was not held worthy of a high command. He *might* have mastered the theory of his craft, and had neglected it. Cassio had shown that his heart was in his soldiering; he had made the most of such opportunities as he had had, and he had acquired a capacity for improving which put him altogether above the Iagos. The highest qualities of the commander—foresight, coolness in peril, fertility of resource in emergencies—were not indeed to be acquired from the study of books; but, on the other hand, they were not in any way to be *injured* by the study of books. And, whatever the Iagos may say, the "bookish theorick" is every year proving more and more valuable. Moltke poring over his books, and maps, and papers, is more than a match for the most dashing *beau sabreur* in the French army. This truth is at length forcing itself even on us in the War Department; and, in spite of the Iagos, we have made the study of theory imperative, and insist on our officers acquiring the bookish theorick at colleges such as Greenwich and Sandhurst.

That the practical men should be annoyed by this attention to theory, is but natural. Knowledge of this kind is apt to puff up, and youngsters sometimes, "make the lesson," as the French say, in an unbecoming and irritating fashion to experienced persons. Hence the hard name hurled at theory, and the common cry, "This may be all very well in theory, but it won't do in practice." Let us consider this a moment. What is theory? Theory is, properly speaking, truth in its general or abstract form; and if a thing is right in theory, it must be right in practice also.

This may seem a bold assertion. Let me explain myself. "A little knowledge is a dangerous thing." Yes, if we are led to presume on it. We can imagine a

little light being a dangerous thing. We will suppose some pedestrians benighted in the Alps. So long as it is quite dark they keep where they are, and are safe; but directly they get a gleam of light they are tempted to move, and having only a little light they incur very great danger of breaking their necks. And yet light in itself cannot be called dangerous, whether little or great. And no more can knowledge. Knowledge is dangerous only when it lead us to presume and fancy we know what we do not. You will understand me best by an example. A young man studies the theory of farming. He then tries to carry it out in a new neighbourhood; and, relying on theory, he sets at defiance the traditional practice of the other farmers in those parts. They prophesy that no good will come of these new-fangled ideas, and very often they prove right. Why is this? Is the theory wrong? Not at all. The young man seems to fail from his knowledge: he really fails from his ignorance. If he knew all the conditions of the problem before him, he would work out right results: but he does not. In applying his principles he neglects some peculiarities of the soil or climate, and the error puts everything wrong. The humdrum farmer, relying only on use and wont, is quite sure to succeed to a certain extent, not nearly as well as he might if he really knew the theory of his business, but quite enough to enable him to laugh at theoretic learning. And we all have a natural satisfaction in laughing at those who without experience assume that they know our business better than we do ourselves. As I said, everybody thinks he can teach the school-master, and we find it a great strain on our politeness to listen patiently, when we are told by parents and other lay persons how we ought to manage our boys. On the other hand, if we endeavour to give our boys any insight into business matters, the business men laugh us to scorn. I shall never forget the contempt an English merchant once expressed to me when I told him that in a commercial school at Leipzig the boys where shown samples of produce. But the contempt is misplaced on both sides. We school-masters might learn much from outsiders, and the Germans have proved the advantage of learning the theory of business at school. Let us make up our minds then, once for all, that there is no real antithesis whatever between theory and practice, and that the same thing cannot be both true and false. This once settled, we must admit that in applying theory the greatest care is needed to enable us to calculate all the forces. Otherwise our calculations will mislead us, like those of a mathematician whose dynamical problem would be all right if he had not forgotten friction. Let us welcome knowledge, even a little knowledge, of what we are undertaking to do, and be sure that knowledge cannot do us any harm if we are sensible and modest in the application of it.

I cannot to-night attempt to give any notion of the ideal training of the teacher. I have a much more simple object in view. I wish to give a few hints to young teachers, and to those who have young teachers under them, as to what may be done in our present circumstances.

Do the opposite of what *is* done, says Rousseau, and you will be pretty sure to be right. And really, when one thinks how the art of teaching is acquired by most of us, we feel inclined to agree with Rousseau. A celebrated oculist was once complimented by a brother professional on his wonderful skill in operating. "Yes," he said, "I can do it now, but I spoilt a hat-full of eyes in learning." And this is the way with us teachers. Some of us get to know our business at last, but how many pupils do we injure by our stupid bungling when we begin? And, unfortunately, teaching is a thing in which practice by no means necessarily or invariably makes perfect. We will suppose a teacher begins in the usual English method. We will suppose he or she (of course I am thinking of teachers of both sexes) has the two indispensables, competent knowledge of the subjects and intense interest in the work. Well, he finds himself all of a sudden with a number, often a large number. of pupils before him, and he has to teach these pupils certain subjects. Not a hint is given him how to go to work. Nobody has time or inclination to attend to him, and tell him where he blunders, or what he should aim at. The pupils are generally the youngest of the most stupid in the school. He soon finds that they do not learn one quarter of what he thinks they ought to learn, and he has no means of ascertaining how far he himself is to blame for this. And then comes the one fatal mistake in most of our school teaching. *He is overworked.* Probably the amount of work thrown upon him would tax all the powers of an experienced master who knew exactly how to set about things, and had acquired facility and speed by long practice, to say nothing of devices which all old teachers resort to for economizing labour. And this amount the beginner, who goes to work most conscientiously and does everything slowly both from want of skill and excess of care, is compelled to deliver as his daily tale of bricks, as though he had straw. Harassed in this way, the young teacher is compelled to think more of the quantity than of the quality of the work he accomplishes. He then reconciles himself by degrees to the wretched performances of his pupils, and supposes that the standard with which he set out was quite Utopian. In a very little while he is, in a sense, a trained teacher—trained to scramble through his work anyhow, and content himself with routine hearing of lessons—trained to accept failure as a law of nature—trained to abandon all the hopes and interests with which he started, and to laugh at them as theoretical. It is because I know that this is the result of your present plan of no-training, that I am so eager to see proper training instituted.

The very first thing that I would urge is that young teachers should have ample time for their preparation and teaching. As you know, the German teacher has to spend a "learning year" without salary, during which year he looks about him in a good school and only does a small amount of teaching, and that under supervision. We cannot expect our young teachers to do this at present; but I think for the first year or two they should be considered learners, and should neither be worked nor paid as if they knew their business. They should never have a class handed over to them, but they should teach under some experienced master, and *he* should be responsible for the result. The learning-teacher, as I may call him (though, in fact, all teachers who are good for anything are learning-teachers all their lives)—the learning-teacher *par excellence* should have ample time for preparing his lessons; he should often give them in the presence of *his* teacher, and should himself see teaching in all parts of the school. The advantages of seeing teaching are indeed very great. By seeing different teachers at work we in the end get some notion of uncommon excellencies to aim at, and of common failings to avoid. We also get sympathy with the the taught. Some of you will remember the lad's answer to the question. Why, when Philip parted from the eunuch of Ethiopia, the eunuch went on his way rejoicing? The boy said it was because Philip had done teaching him. Now I never realised the

full force of this answer till I took to visiting schools and staying through the hour's lesson in the same class-room. The teacher has his time fully occupied, and his attention on the stretch all the time, but no one else has; and the hour seems to go very slowly indeed when nothing is spoken of but the government of cases or the eccentricities of irregular verbs. If it were only to get some notion of the stupefying effects of dulness, I would strongly recommend all teachers to attend the lessons of other teachers. We might, learn to "see ourselves as others see us," and so become ashamed of impatience and want of self-restraint; and we might even get to feel compassion instead of unmitigated contempt for the unfortunate Jones *minimus*, when, for the third time of asking and the thirtieth time of telling, he evinces a deep-rooted ignorance of the meaning of *in* before the accusative.

In the first place, then, the learning-teacher must on no account be hurried and over-worked, or even hard-worked, for he must have ample time to observe, to think, and to take notes of his thoughts and observations. Next, he must see a variety of teaching. Thirdly, he must teach carefully prepared lessons, and that under supervision.

Peahaps I shall find many agree with me so far, who nevertheless become suspicious directly I come to the *bookish* theorick. Some people have an odd prejudice against book. They will admit the value of advice from people of experience, provided only that it does not come to them in print. But, for my part, I must say that print seems to me on the whole a very convenient method of communication. But, it may be said, an art cannot be learnt by reading a book about it. Certainly not; but some very useful facts about the art may be thus learnt, nevertheless. Nobody ever learnt to swim or to skate or to row by reading; but very useful hints on these subjects have been given in books, and there is a treatise on skating, in particular, which is carefully studied by members of the skating club. and, to address myself first of all to the practical people, I maintain that a great number of very useful hints may be given to teachers by good books on teaching, and I am utterly perplexed by the ordinary teacher's ignorance of such books as we have. May I give an instance or two of the hints which may be picked up from books? Eight years ago I read a good many books on education with a view to some essays which I afterwards published. In a very old book, the *Ludus literarius* of Brinsley, published in 1612 (that is, in the lifetime of Shakespeare), I found a description of a kind of match in school, two boys being appointed as leaders, and these choosing sides. The plan was taken from the Jesuits, but the details seemed to be Brinsley's. Whose ever they were, the notion of these matches was a very good one, and I soon introduced them in teaching. Speeling seemed a very suitable subject for them, and I have mentioned it as such in a volume published in 1868. Why should this hint be considered excellent when it comes to us as an American Spelling Bee, but useless bookish theorick when one unearths it in Brinsley? This troublesome and often dull subject of spelling may be made easy, and even amusing, by this and a few other expedients, all of which may be learnt from books. At a recent examination of teachers at this College, I asked the candidates to name and criticise all the methods they knew of teaching spelling; but with two or three exceptions they knew no method but dictation, which is not a method of *teaching* at all. In an American book, Northend's "Teacher and Parent," I have found a variety of plans for teaching spelling, which reminds one of the little book called "A Hundred Ways of Cooking an Apple." A plan mentioned by Mr. R. Robinson, in his "Manuel of Method," of making children write at the end of their copy-book a line of any word they had mis-spelt, and then say, these from time to time, I once adopted with such good effet, that when I told a class to write any twenty words they were sure of, they wrote just the words they had formerly mis-spelt. Another hint I had which proved a confort to me. Some twenty-five boys were in the habit of giving in exercises. On counting them, I perhaps found there were two or three missing. It then cost me some trouble to go through the list, and see who were the defaulters; but when I had had a hint to make each boy put a number as well as his name, I arranged the exercises without difficulty and saw at a glance whose were wanting. Again, take saying poetry by heart: many teachers know of only one way of testing; there are half-a-dozen at the least. The teacher may have it said a verse at a time, putting on boys in any order, or a line at a time, or may run round with a word at a time, marking those who fail; or he may read the piece, and pause here and there, calling on some one to take it up at that word; or he may give out paper and pencils, and make all the boys who can, write in column the rhyming words, or the first word of every verse, or the next word of every verse, or the next word when he pauses in reading. I could, of course, easily multiply my instances. Here is a very ingenious device which I learnt from a book,—I am sorry to say I forget from what book. When we set children copies, they, in the first line, copy our writing; but in the second and all subsequent lines they copy their own. This is obviated by making them begin at the bottom line of the page and write upwards.

There are, in fact, numberless ways of doing thinks, some good, some bad, and some indifferent, and it is of great advantage to a teacher to know a variety of ways. He will then be able to choose the best; and, besides this, there is a great gain in changing one's method sometimes. Monotony is the bane of school life, and a simple change often wakes everybody up, and throws life and interest into what was fast becoming mere *grind*.

A whole crowd of hints rush into my mind which might easily be given to young teachers in a printed book: the importance of marking one's book when one prepares a lesson: the advantage of keeping a list of good questions as one goes over the subject, so that one may be able to set a good examination paper on it at the end; the value of keeping one's own examination papers as a record of one's efforts in teaching,—these, and others like them, might easily be impressed on young teachers with the assistance of the printer, and I fancy such hints would commend themselves to practical men. To offer myself as the *corpus vile* on which experiment has been made, I may say that my whole life as a teacher has been affected by two hints I received at the outset. One was, "The teacher's power depends on his eye; *see* all you can." The other was, "Don't say a word more than you can help." Now I have not acted rigidly on these rules—not on the last at all events; but they have had great influence on my conduct as a master; and these hints might have been given me in print.

About theory, we must be on our guard. So long as our author confines himself to practical hints, we know where we are, and can form some notion of the value of what he offers us. But when we come to theory, the case is very different. The young teacher finds a number of hard words used without explanation, and he does not know whether they contain important truths, or

are, in fact, mere shams and disguised common-places. Now I am constrained to admit that many books on education which make a great show, are made up entirely of these disguised common-places; so that it is not to be wondered at if many young teachers have attempted to study educational works, and have been as unsuccessful as though they had tried to eat sawdust. All I would say is, do not be discouraged if the first books you attempt to read prove dull. You may have hit upon a worthless book; you may too (and this is often the case) have hit on a book not by any means bad in itself, but unsuitable for you at present. I suppose it has happened to all of us—all but the very young, at all events—to open a book which once seemed meaningless, and to find that a change had taken place, and that it had become full of meaning for us. It is, therefore, very difficult to recommend books, and one should always make the reservation, "Try such and such books, and read them *if they interest you*;" for in all learning, there is much sense in Voltaire's rule, "Every way is good, except the tiresome."

But the great gain to be derived from studying good books on the theory of education is this: such study gives us an insight into the capabilities of our calling, and into the chief problems connected with it. And, by knowing what may be done and what might be found out, we get and infinite field of interests thrown open to us, and so escape from the feeling of monotony and the bondage to dull routine which is the common disease of the schoolroom.

One of the great lessons of life—a lesson so important that we are wise only so far as we have learn it—is that things are not what they seem, and that we must look, not to what is seen, but to what is not seen. And this great truth has a special application in the school-room. We all know what our work seems to us, what our pupils seem to us, when we are jaded with hours after hour of toil and worry. But if we give ourselves, as we are in duty bound, proper seasons of thought and study, we rise to a higher level, and see things very differently. In the schoolroom we have perhaps got to think of boys as the drill sergeant thinks of his recruits. The only difference he can find in them is, that some pick up the goose step much faster than others; and the only difference we can see in our pupils is, that some don't talk and know their grammar, and that others do talk and don't learn. But when we think of the things not seen, we find we have to do with much more complex beings than we supposed. The title "many-sided" is kept as a special honour for the great Goethe, and yet it might in a sense be applied to the ordinary schoolboy. The boy is a son, and on this side he has a whole world of feelings and affections connected with his home. Then, again, he is (at least I myself am inclined to believe it) a *thinking* being, who will not, indeed, think just at the time and on the subjects you desire, but who nevertheless speculates habitually about the problems of his daily life, and the characters of his superiors and associates. Then, again, he is the schoolboy proper, with his tendency to shirk his work and throw heart and soul into his play, with his proneness to bullying, deceit, and false shame, and to coarseness in thought and language. Again, he has a spiritual nature which impels him to seek improvement, and frame many an earnest prayer and good resolution. All these different and apparently conflicting characters are combined in the boy who seems to you a mere repeater of Latin grammar. If we are to be worthy of our calling then, we must look to the things that are not seen; and in doing this good books will help us.

There are a great number of interesting problems connected with education, and every teacher should be an inquirer and investigator. Books are useful here in pointing out the problems before us. To take an instance. Mr. Eve, in his excellent paper on the training of the teacher, (1) has remarked that young teachers think of accuracy, and neglect stimulus. Here is a very difficult and important problem: How are we to keep to the same ground long enough to secure accuracy, and at the time keep our pupils interested, as they are interested, by novelty?

This and many more problems are not to be settled off-hand; but books can put them before the teacher, and then leave him to investigate himself.

In conclusion, I would urge the same point I began with: avoid the descent into routine which must follow from overwork. Let the young teacher have time to make an intelligent study of his profession; let him keep his eyes and his mind open, and believe in the possibilities of his calling. School teaching certainly may be dull and monotonous; it may also afford infinite variety and life-long discovery. And this vast difference depends very much on the road in which the young teacher is started. If the young teacher is left to find the way for himself if we do nothing for him and require everything from him, he will almost inevitably settle down into the mere mechanical worker, whose real life with all its interests and pleasures has no connection with his calling. But if we give him our guidance, and still more our sympathy, when he comes fresh to his work with a belief in its possibilities, we may develope in him a spirit of enthusiasm powerful enough to resist for his whole life the stifling atmosphere of the schoolroom.—*The Educational Times.*

Hygiene.

This is a matter the importance of which is now only being comprehended, and a sufficient knowledge of it scarcely exists in the best informed authorities, to say nothing of the general public.

THE HOUSE WE LIVE IN.

This will deal with the house in which we have to live, and the various points to be attended to in its construction, and in the selection of a site. To take the latter first, it should be so situated that there is an outfall for the waste water and sewage; and it should also be exposed fairly to the sun. The necessity for the first is obvious; a word about the latter may not be out of place. The effect of cutting off the light are seen in the blanched condition of vegetables deprived of light, or even more still in the debilitated appearance of those parts of a plant which are removed from the light. What is more to the point is the effect of sunlight upon the human frame. This has been most illustratively seen in the effects upon the health of residents in differents portions of the same barracks. The largest portion of ill-health was always found in those sections which were furthest removed from light and sunshine. The companies were changed back and forward, but the illness always stuck to the dark and shaded barracks. The effect of the glancing sunlight is well seen in the convalescent who seems positively to absorb strength and spirit by being bathed in the invigorating light.

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(1) *Monthly Journal of Education*, Sept. 1875.

The next matter of importance in the selection of a site is with regard to the nature of the soil. This is important from several point of view. Firstly it has been abundantly demonstrated that "dampness of soil is an important cause of phthisis to the population living on the soil," and the improvement produced by draining the subsoil in lessening the amount of consumption is marked. Where the soil is too damp this must be met, as far as possible, by careful drainage of the house and curtilage. On sand or gravel a house stands dry and warm, provided this subsoil drainage be efficient. On clay soils it is more difficult to avoid dampness. Another point to be attended to is that of the actual warmth of different soils. Some absorb heat much more readily than others, and are drier and, consequently, warmer to the feet. Soils give up their heat much more rapidly than they absorb it, and so cool at night very markedly. Sand, with some lime, forms the soil which absorbs heat most perfectly, then sand alone, and lastly clay—the heavier the colder. Thus, in the cold coutries clay soils induce catarrhs, rheumatism, phthisis, etc., and sandy soils are much to be preferred. In hot countries sands are too warm for health and comfort unless covered with grass.

Of all the horrible insanitary arrangements devised for the direct induction of disease and ill-health the most diabolical are rubbish foundations. "Rubbish shot here" is the herald of disease and death. It is flagrant violation of all sanitation. The rubbish consists in every case, more or less, of decaying organic matter, animal and vegetable. This decomposes, and in doing so either evolves directly active poisons, or forms a capital nidus for their settling down. The houses are notoriously unhealthy, for when they are built upon rubbish the engendering of disease is converted from a probability to a certainty. Not only is it most unwise to actually bring poison-bearing rubbish to form foundations for houses, but every old drain, cesspool, and pit should be carefully cleared away. In the midst of stately piles of buildings certain houses have been known to be infested with typhoid fever, as it were smitten with pestilence, where old unremoved cesspools remaining and poisoning the inmates have been discovered, and their removal has been followed by the cessation of the local plague. It is of vital importance that the foundation of the house be free from poisonous material.

Having seen that the site is not infected with the material for a future host of doctors' and undertakers' bills, it is important to attend to the removal of the refuse and waste from the house, and to protect it from damp. Drains should not, if possible traverse a house, and when this is unvoidable, glazed earthenware pipes, laid in concrete or cement, carefully sealed up at the joints, and then covered by cement, should be used: and protected at the walls by relieving arches, to secure them from the effect of settlement. Ventilation of them should be provided at their entrance and exit, and access pipes should admit of ready entrance to them. They should also be periodically flushed, so as to secure them against accumulation in their interior.

To protect the house against damp it is necessary that a damp-proof course be laid over the whole of the foundation. This should consist of hard-glazed earthenware tiles, or slate laid in cement. In addition to this a dry area around the main wall is highly desirable. This is furnished by having an outer wall around the main wall, leaving a space betwixt them. Having so secured the foundation, the outer walls may be protected against the damp produced by driving rain either by covering them with slate, or a waterproof composition. Much of the damp absorbing power of walls depends upon the nature of the materials used in their erection, and soft porous materials are most objectionable. The same may be said of floors, which should always be of wood, if possible, and well ventilated underneath. In many places flags are used instead, but they are much colder, and absorb damp more easily. But the most abominable of all floors is that made of bricks. The housewife notices that after washing them they quickly dry, and perhaps rejoices in her heart thereat. If so it is an ill-placed contentment, for the bricks absorb the water and remain cold and damp: causing much ill-health and disease.

The walls of the houses should be substantial, and stout enough to protect the dweller against external damp; in which respect houses being built in towns and suburbs are lamentably defective. The roof should be well united, and the rain should be collected into sufficient and well-jointed spouting, and carefully carried off either into cisterns or drains. If the former they should be efficiently drained, so as to secure the removal of the surplus water. Defective spouts and the saturation of walls with rain-water are efficient factors in the production of disease; and a damp house is inimical to health.

The spouting should converge to one or more down pipes which run from the roof into the drains. These down-pipes serve also another useful purpose. They serve to ventilate the drains and carry the sewer gas away from the house, and out into the air; so relieving the house from the danger of sewer-gas escaping from the water-closets, etc., and poisoning the house.

THE AIR SUPPLY.

The next point to consider about the house is its air supply. This is a point of no secondary importance. A free supply of air is necessary to the wants of the system, and that air must possess several requisites: it must be pure and free from hurtful constituents, and be furnished in good quantity.

Air is a mechanical composition of nitrogen and oxygen, the oxygen being about 21 per cent, by volume, and in addition to this 3 parts per thousand of carbonic acid gas. Water in the form of vapor, and traces of ammonia, may almost be regarded as normal constituents of the atmosphere. The oxygen is the essential element, the nitrogen being merely a diluent. Oxygen in an active condition is termed ozone. The consumption of this ozone by the respiration of animated creatures and the combustion of fires and flames, renders the air of towns much less invigorating than that of the open country or the ocean. Rebreathed air in close ill-ventilated rooms leads to a sense of lethargy and depression, not unfrequently combined with headeache, as consequences of the imperfect removal of the carbonic acid, etc., and the absence of active oxygen. "The quantity of oxygen is sensibly diminished in the air of towns." The amount of carbonic acid varies under different circumstances, but not very markedly in the open air, where it never reaches one per cent.

Air to be pure must contain a normal proportion of its constituents; it ceases to be so when some are present in excess or are deficient. It becomes impure by the addition of foreign matters, either solid and merely suspended in the air, or gaseous and diffused through it. The suspended matters borne by the air by which we are chiefly disturbed are the products of imperfect combustion, or smuts. They are the nuisance of every large town, especially in dark, dull weather. They blow in through the finest crevices, and settle every-

where. In certain states of the weather, the products of imperfect combustion form fogs, which are smoke clouds. The presence of these smuts in a condition of the finest subdivision is then readily demonstrated by the expectoration; the expectorated mucus is dark and inky from the particles arrested and detained by the mucous lining of the air tubes, and drawn in by the respiration. Through the fog the noon-day sun appears through a piece of smoked glass: it is really seen through a smoke-laden atmosphere. But in addition there are vegetable seeds, spore and germs; low forms of animal life, of puscells and epithelia, especially in the air of hospital wards; particles of fabrics, cotton and wool; and at times mineral matter, as sand, forming in certain regions sand clouds, the deadly simoon which the Arabs dread. Contagious particles, though too minute to be recognizable by the most powerful microscope, or detected by the subtlest analysis, are borne in the air, 'and their presence demonstrated by their effects. The odor of plants is due to minute particles of solid matter which are wafted off the plant, and bear the characteristics of each. The rose has its odor, and so have the violet and the woodbine, they are distinct and recognizable; but they have never been seen by the microscope, any more than has scarlatinal poison; no chemistry can determine their composition, which is as unknown as that of poison of typhoid fever.

Malarial or marsh poison cannot with certainty be referred to the class of suspended agents, possibly it belongs to the gaseous division. Organic matter has been found in the dew of malarial districts. But there exists no doubt as to the existence of malarial poison, and much is known about it, though its presence has never been demonstrated by any other means than its results. Probably fever-poisons are not gaseous but solid. We will refer to them again in their own section.

The gaseous impurities of air arise variously from the body itself, from the earth, and from manufactories. The carbonic acid which is given off by the respiration is a common cause of air-contamination. Its excess in the body is always accompanied by a deficiency of oxygen, and the effects of each are with difficulty separated. In "the back-hole of Calcutta" and the well-known case of the "Londonderry," these two were combined, and the mortality in each case was fearful; in the first 123 died out of a total of 146, in the latter out of a total of 150 no less than 70 perished. The amount of oxygen may be reduced from 23 per cent. to 20, in close ill-ventilated places; and such diminution is not only deleterious and dangerous if carried too far, but if only existing to a lesser degree, it is baneful and injurious to the health; causing great loss of vital force and leaving the person predisposed to disease.

Emanations from the earth of an injurious character generally take their origin in decaying organic matter, and form zymotic poisons, to be considered hereafter; but sometimes gases are exhaled as the choke-damp of mines, sulphureted hydrogen and carbonic acid. Earth itself is a good disinfectant, and organic matter efficiently buried rarely causes any troublesome consequences.

Air is extensively contaminated by manufactories and chemical works, and in more limited areas by fumes in certain trades, as we have seen before.

VENTILATION.

In this division will be considered the question of the amount of air required; and then the subject of ventilation: closing with the means of ventilation so intimately associated with the warming of buildings.

The amount of air which each person requires is that amount which shall not allow of an accumulation of carbonic acid beyond a certain point. This gas exists normally in the air, but below 4 parts per thousand; an atmosphere containing 1 per cent. is odious and instinctively avoided. In an atmosphere where 1200 cubic foot of fresh air was furnished to each person per hour, the proportion of carbonic acid rose to ·855 per 1000 volumes; with a supply of 1700 feet of air each man per hour it reached ·769 per 1000 volumes; where only 765 cubic feet per hour each was furnished, the carbonic acid attained to 12 per cent.; this last was obviously very unwholesome. Probably 1200 cubic feet of air per hour is the least which is compatible with health. But this calculation excludes carefully any lights or fires, which consume the oxigen of a room very rapidly, and load it with carbonic acid; the effects of which will be considered shortly. The sick require more air than the healthy, and in hospitals even 3500 cubic feet per hour per head has not been proved sufficient to prevent the peculiar offensive odor.

Now it is obvious that the mere cubic space afforded to each person will not in itself meet the question. The rate at which the air is renewed is a most important factor. If there is 200 cubic feet of space for each person, it is obvious that the air must be renewed 10 times per hour in order to afford each person 2000 cubic feet of air in that time. If the space for each person is 400 feet, the air need only be renewed 5 times per hour. The rate with which air passes into and through a room involves the question of draughts. In order to keep a small room efficiently ventilated, the movement of air must be so rapid as to cause a draught, and draughts are common exciting causes of illness. Large rooms are better than small ones, because the air has not to be so frequently renewed, and draughts are thus avoided; the number of persons being alike in each case. When the rate of change of air in a room exceeds 3 or 4 times per hour it becomes disagreable, and warmed air is requisite.

Natural Ventilation.—This is achieved by the readiness with which gases diffuse themselves through the atmosphere by winds, and the circulation of air currents. Currents are largely produced by changes of temperature: as seen in the sea breeze of the morning and the land breeze at night, the air coming off the heated pland in the evening, and returning again when the land has been cooled by night. Artificial currents exist betwixt the heated room and the cold air outside; the hot air escaping out, and the cold air coming in. The rushing of the heated air up the chimney causes a draught to the fire, and consequently ventilation of the room. It is obvious that there must be a draught where the external air enters a room and crosses it to the fireplace, and persons in that air-current are very apt to take cold. Currents are also produced by having points of entrance and exit, as open windows, especially when these face each other. This is called "cross-ventilation," and is largely employed where practicable, as in a large wards and single houses. When the configuration of the room will not permit of this, the air-currents pass from the windows to the door or fireplace, or from the door to the fireplace directly. The efficient ventilation of a room is so commonly productive of cold draughts, that various contrivances have been devised to obviate these unpleasant consequences. Ventilators have been put in the roof or ceiling, from the known tendency of heated air to espace upwards, and form the usual and common means of securing a change of the air in apartments. These ventilators often form shafts passing through the

upper stories and emerging at the roof. These ventilators are good when they are efficient; but it is not always easy to know when the ventilation through them is active.

The plan of having a strip of paper, or rag, so hung as to be visible, and by its fluttering telling of an air-current, and by its motionless condition informing us when the air-current is arrested, is one which might be more generally adopted. The incoming current of air is and should be always directed upward towards the ceiling, so that the cold draught may not strike the inmates. There are many plans in vogue for the production of this end. One is to have either a glass louvre inserted instead of the top centre pane, or to have the pane cut into strips, which may be separated or approximated by a cord. Another plan is to have the panes doubled, the incoming air being warmed in the space betwixt the panes, the course of the current being also thereby broken. A third plan is to have a wire screen at the top of the widow, which takes the place of the window when it is drawn down. But no plan will ever be so effective with single windows as are those where the windows are double. This is a luxury to which English people are averse, and yet the double windows deaden sound, as well as permit of an ample space where the air can be warmed and its current broken betwixt the windows. A pane can be divided into slips in the outer window at the bottom, and a louvre put in instead of a pane at the top of the inner window, and then the rate of entrance can be thoroughly regulated, and a perfect ventilation be established without draughts of cold air. The effect of double windows is well seen in foreign hospitals, and for the sake of this improved ventilation and the deadening of sound they should be introduced into banks, business houses, and hospitals—the last especially—as well as into private houses; and their introduction would be conducive to health and comfort.

An excellent plan of ventilation is to have the interspace betwixt the ceiling of one floor and the flooring of the story above, itself well ventilated; and to allow the air carried out of a room by a ventilation in the ceiling to pass into this interspace, and from thence out into the open air. At other times the ventilator can be carried through a shaft to the roof, and then the shaft can be surmounted by a cowl. The cowl at the top of air-flues and chineys is a plan for utilizing the aspirating power of the wind. A proper cowl rotates and turns its back to the wind and the rain, and in order that it may do so, it should be well balanced and rotate easily.

Artificial Ventilation and Warming.—It is almost impossible to consider the two subjects separately, as fire is used for both purposes—indeed cannot very easily be used for one without involving the other. The combustion of the fire draws a current of air towards it in addition to the action of the shaft or chimney, and by their combined action a good change of air is maintained. The open fire of England indeed is much more efficient as a ventilating than as a warming agent, and is almost the reverse of the stove of the Continent, with its heat-giving surface of glazed tile. The chimney acts as a ventilating shaft, even when the fire is not burning, though the ventilation is not unobjectionable when the air-current comes down the chimney.

In an ordinary fireplace the waste of the heat is enormous, and the statement that the actual waste of coals is greatest in private houses is well founded. No less than seven-eights of the heat passes up the chimney; and even with reflecting backs, etc., the waste is excessive. At the same time such a fireplace and chimney will ventilate a room capable of holding from three to six persons, as the quantity of air passing up it is equal to from 6000 to 20,000 cubic feet per hour. If the room is small and the fire brisk, the passage of the air through the room is keenly felt; and you are roasted on the side turned to the fire while the other is chilled by the cold air which rushes in behind. Large rooms, with an equal amount of fire, are much more comfortable than small ones: provided that the large rooms are not unecessarily airy and draughty. With the ordinary fireplace then the room is rather ventilated than warmed: and when the room is too well closed against the entrance of the cold air by chinks in the doorways and windows, the chimney has down draughts, and the cold air rushes down as well as the heated air mounts. The diffusion will take place somehow. As a rule the cold air rushes in under the door: and every one knows rooms where you are comfortably warm everywhere except the feet. They are stone-cold from the cold draught betwixt the space beneath the door and the fire.

Many have been the inventions to render fires more useful as warming agents. One of the best contains an air chamber at the back, through which the air enters the room, and is at the same time so heated as to no longer cause a cold draught. Another is a cottage grate of fire clay, also with an air chamber. Less complicated plans of causing the back of the grate to lean forward and so throw back the heat into the room, have been more or less adopted. The desirable fireplace, of simple yet effective construction, has still to be discovered. Several forms of stoves have been invented to economize fuel, or to utilize the heat produced. Two favorite forms have the air introduced beneath the stove and then given off, warm flanges of metal heating the air as it passes off. A dish of water gives to the heated air the requisite and desirable moisture.

Some gas stoves warm the air ere it is given off into the room, moisture being furnished by a water dish. But all stoves are objectionable, for, while heating the air, they give it an unwholesome dryness.

Another method of utilizing flame as a ventilator is to have the gas-lights so arranged in the ceiling as to form the "sunburner," and by adding a shaft to this burner the already respired and vitiated air is drawn towards the shaft and passes away out. This forms an efficient ventilator.

But gas is an objectionable heating agent; and the arrangements must be very perfect to admit of its being used without actual detriment. The products of gas consumption are very disagreable as well as deleterious, as every one knows who as been where gas is largely burned either as gaslight, or in the "clinker made-up grates," which when red hot somewhat resemble an ordinary fire. The air is heavy, unpleasant, and laden with the products of combustion: unless the ventilation be very perfect.

Another plan of producing warmth and ventilation is that of combined hot water pipes and air shafts. The plan of warming a room with hot water pipes has long been in vogue, and in many instances it is an excellent and efficient mode: and it has also been proposed to have around the water pipes air shafs, so that the air might be heated by the contact with the hot water pipe. This air shaft along the hot water pipe would surround the room, and by many minute perforations admit of the warmed air entering the chamber. Then, by means of propulsion, the air could be forced into the room at a fixed rate: and by a modification of the machinery its rate of entrance could be checked when desirable. Propulsion of air into rooms dates back to the year 1734.

and the idea of warming it ere its introduction into the room has existed since 1713.

Extraction of air by a fan is used in collieries to maintain a practically sufficient ventilation. A fan worked by steam will extract no less than 45,000 cubic feet of air per minute, and so cause an equal quantity of fresh air to rush in to take its place; so that no less than 225 men could be supplied with fresh air at the rate of 2000 cubic feet per hour, by one of these fans. This extraction of air is used for buildings in other countries, and is said to be more efficient and less costly than the plan of propulsion. Whenever hot pipes are used to warm rooms it must not be forgotten that there is no longer the air current established and maintained by an open flame; and special means must be taken to maintain the ventilation. The tendency to exclude fresh air from rooms is only too deeprooted, and the more effectually most of the chinks in the room are closed the more active will be the draught from the unclosed chinks. If all the chinks are closed the atmosphere of the room will become very vitiated; and all the consequences of bad ventilation will be artificially secured. —*From "Maintenance of Health," by Dr. F. Miller Fothergill, in New Dominion Monthly*

On some of the Graver Pleasures of a Country Dominie.

In a manual much thought of amongst teachers some twenty years since, it was laid down that "above all things a teacher should not be of a bilious temperament or troubled with a liver." The author, if he ever had to select a youth as a pupil teacher, would doubtless have searched for one who possesed the "mens sana in corpore sano." It would be well in these days of haste and high-pressure work if more attention were devoted to this question of health. How many a teacher has become a miserable man and a terror to his youthful charges because he was dyspeptic *and had a liver!* and how many strong and healthy men have succumbed to the bad ventilation of their schools (especially of the class-rooms) and the harassing nature of the work because they neglected their health. Every teacher ought, therefore, to be thoroughly sound in constitution to begin with, and should take reasonable care to remain so under God's blessing. He should do this, not merely for his own sake, but also for the sake of those committed to his charge. It would be a very black list, we fear, if all the punishments were enrolled that were caused or aggravated by a bad liver, or a fractious temper engendered by a bad atmosphere and the want of outdoor exercise.

Every one engaged in a sedentary occupation like that of teaching ought to provide for a daily stipulated amount of time to be spent in the open air. The freshness and renewed vigour with which one goes back to duty after such relaxation are most decided, and will invariably show themselves in a more cheerful and even temper, and in a more kindly appreciation of that child-life with which a teacher has to deal. We well remember, and with gratitude, the sound advice given by one of Her Majesty's Inspectors to the writer in the first year of his school work. It was this—"Work hard in school, and after school hours get as far away from it has possible." We understood it to have two meanings: first, to go for a long walk, and second, to take up some study, as every teacher ought, as far removed from school work as possible. We have followed the advice and can commend it. Of course cricket, gardening, football, &c., will do instead of the walk. But to those whose years, and perhaps *weight*, render such exercices unsuitable, the walk by "hedgerow green," "o'er the breezy down," and "through the pathless wood," can always be enjoyed. And to give a zest to the country ramble one of the most amusing is the collection of quaint "uncouth rhymes." This have been one of our *graver* pleasures; a *livelier* one is a good working committee or an enthusiastic conference. A good strong pair of boots, with a stout useful stick, and a few shillings in pocket, are all that are required. England and portions of Scotland have furnished the writer with sufficient variety of incident and scenery, and to him it is a source of gratification that, come fair, come foul, no one can rob him of the pleasurable recollection of scenery enjoyed, and of the remembrance of "ivy-mantled towers" and old baronial castles which he has seen. How pleasant when on such a journey in search of the picturesque and of health, how charming it is to turn aside from the beaten path and ramble amongst the mansions of the dead in God's acre, to scan each stone, and to examine the fane whose spire, in each assemblage of men intent on the pursuit of wealth, ever enters its silent protest against man's grovelling pursuits, and solemnly points his eyes and thoughts aloft. In this "land of old and settled renown" there are not many villages but can boast of a temple remarkable in some way. In *this* the architecture calls for study and notice, in *that* the last resting-place of some of one memorable, possibly in *national*, or at least in *local* interest, arrests attention; *there* is one—which for ages has been a guide for the tempest-tossed sailor, whilst *here* perhaps is another famous for nothing but its exceeding plainness.

However, it is not with the buildings, but with the *graves* and "the doors of the dead," as we once heard the poet Longfellow describe the grave-stones, that we propose to deal in this short article. And as none but *good* people are ever buried, we are bound to *limit* our remarks to those inscriptions and epitaphs which are noteworthy for their quaintness, wit, rusticity, or uncouthness. We cannot pretend to burden our readers with the ordinary praises of affectionate husbands and fathers, of beautiful and loving wives and mothers, or of obedient and all-that-was-to-be-desired sons and daughters. They for an army whom no man can number. To our task then. The first we remember culling is to be seen in St. Clement's churchyard, in that ancient and once important borough of Sandwich. It is in memory of "an old salt," one Captain John Morgan, and is dated 1777. It runs thus with happy feet—

Tho' Boreas' blasts and Neptune's waves
Have tossed me to and fro,
In spite of them, by God's decree,
I harbour here below.
Where we at anchor ride
With many of the fleet;
Yet once again we must set sail
Our Admiral Christ to meet.

Who but can admire the simple faith and trust of this brave old seaman? The next one, also from the Garden of England, shows what ludicrous nonsense some village poet has perpetrated for the sake of the rhyme. It is in the churchyard of a village in the Weald, and states that—

Here lie two children dear,
The one buried at Cheriton and the other here.

A cynic might say that the distich *did* the *lying*. Of a kin to this one, and as another specimen of how truth

must give way to the exigencies of rhyme, take this for example—

Underneath this sod *lies* John Round
Who was *lost in the sea* and never was found.

The next one, given in the *Spectator* a short time since, may be inserted here as a strong contrast to these *lying* ones—

Here *lies* at last prevaricating Will,
He loudly *lied* in life and now *lies* still.

The parting kick *downstairs* is particularly strong. For the sake of rhyme the poet has turned prophet in the next—

Near this place his mother lies,
Likewise his father *when* he dies.

Before the labours of Messrs. Curwen and Hullah (we do not wish to be invidious, and you may put Hullah and Curwen if you prefer it) had produced such a respectable knowledge of music as can be found now in almost any village, the services of the parish clerk were of very much more importance than now, especially when, as in Swift's case, the service forme a *duet* between the doctor and dearly beloved Roger. My next does justice to one of this meritorious class of "poor clerks." It is in Bakewell churchyard, and sings Philip's praises thus (Philip Roe, September 12, 1815)—

The vocal powers, here let us mark
Of Philip, our late parish clerk,
In church none ever heard a layman
With clearer voice say Amen !
Oh ! who with Hallelujah's sound
Like him can make the roof resound ?
The Quire lament his choral tones,
The town—so soon here lie his bones.
Sleep undisturbed with thy peaceful shrine,
Till angels wake thee with such tones as thine.

What a grand apostrophe in the eighth line! The poet was evidently distressed for a suitable rhyme to tones. The same churchyard furnishes the following dry and caustic description of a barber-surgeon. It reads thus:—"Know posterity, that on the 8th of April, in the year of grace 1757, the rambling remains of the above-said John Dale were in the 86th year of his pilgrimage laid upon his two wives.

This thing in life might raise some jealousy,
Here all three lie together lovingly ;
But from embraces here no pleasure flows
Alike are here all human joys and woes ;
Here Sarah's chiding John no longer hears,
And old John's rambling Sarah no more fears.
A period's come to all their toilsome lives,
The good man's *quiet* ; *still* are both his wives

Some such as the two following doubtless caused Grey to write about uncouth rhymes :

Betty Ooden,
Who lived no longer, cos she cooden.

Poor Martha Snell, her's gone away,
Her would if her could, but her couldn't stay .
Her'd two sore legs and a badish cough,
But her legs it was as carried her off.

Evidently grammar had not been a "specific" subject of instruction in the days when it was penned. We feel, however, that we could almost excuse the grammar for the grim humor of the last line. Sometimes the epitaph is made to serve a double purpose, and when we see nowadays the rector of a parish keeping a sharp look-out on grave-stones, and refusing to allow the harmless title of courtesy to be placed on the memorial-slab of a brother workman in the vineyard, one is constrained to sigh for the charity of bygone days. Why did the *rector* not object to this?—

Beneath this stone in hopes of Zion
Doth lie the landlord of the Lion ;
His son keeps on the business still,
Resigned unto the heavenly will.

And to this on a quack ?—

I was a quack, and there are men who say
That in my time I physick'd lives away,
And that at length, I, by myself, was slain
With my own drugs, ta'en to relieve my pain.
The truth is, being troubled with a cough
I, like a fool, consulted Dr. Gough,
Who physick'd me to death at his own will
Because he's licensed be the State to kill.
Had I but wisely taken my own physic
I never should have died of cold and tisick.
So all be warned, and when you catch a cold
Go to my son, by whom my medicine's sold.

The next we propose to give is from Wigtown in Galloway, and is a specimen of bathos. But "if all's well, that ends well," who can blame the poet ?—

Here lies John Taggart of honest fame,
Of stature low, and a leg lame ;
Content he was with portion small,
Kept a shop in Wigtown and that's all.

Here is another. We have often wondered if the bereaved relatives were proudest of the fact that there was such a *large family* or that one was *abroad*. It runs thus :—"She was the mother of fourteen children, thirteen of whom followed her to the grave, whilst the other was in the Isle of Man." In the same churchyard, which by-the-way is on the banks of the Eden and in one of the loveliest parts of England, there is this homely and pathetic epitaph. It is on the grave-stone of a lad who died in his teens, and stands thus :—

When in this world but short was my stay,
And empty was my laughter,
I go before to show the way,
And thou comes jogging after.

Want of space will prevent the exhaustion of the writer's *repertoire*. During this Christmas holydays, in a glorious "tramp" along the breast of the Pennines in company with a congenial soul, the writer picked up a couple more, one a little gem in its way, and the other one of the uncouth rhymes of Gray's immortal song. It, with Mark Twain's account of his visit to Niagara, over which cascade he fell and got wet, formed admirable condiment for the smoking ham fresh eggs with which the neat-handed Phyllis refreshed the hungry dedestrians.—*The Schoolmaster.*

Treatment of Children.

BY MRS. B.

Mothers, let us have a little chat together about the proper training of the little ones and the young people that are so soon to take our places in the busy work-a-day world ; perhaps we can get some new ideas from each other that will be helpful to all. I am not of those who think the little ones can be put aside to care for themselves as best they may. They need watchful attention from the time they begin their education, which is the moment they begin to observe how other people do, and try to imitate them. Children are great imitators; how important then that we put a double guard upon our lips and our general conduct ; how important that we should be

always truthful and candid with them. Always say just what you mean to a child, and never break your word with them; if necessary put yourself to inconvenience; disappoint yourself and your older friends if need be, but keep faith with the little ones. Be careful not to promise more than you will be able to perform; do not allow any one to frighten them in any way, either by telling stories or playing tricks on them. If they ask information, explain to them plainly and truthfully; or if it is something they ought not to know tell them so, do not deceive them; they are sure to learn the truth sometime. If it become necessary to punish for a fault repeated, do not allow yourself to do it while you are angry—if you do you will do more harm than good; take them away from the family—speak gently, explain and reason with them, and they will generally take pride in doing well at all times. Many children have been made stubborn and wilful by mismanagement. Do not expect more of the young than the old; do not correct them for things that you, by example, teach them every day—even the substance and tone of conversation will be imitated. If you wish your children to be lovers and retailers of scandal and gossip, you have only to talk regularly of the doings, sayings and imperfections of your neighbors and associates, and allow them to tell you of the day's doings at school, etc. Whatever is made the most of at home the children are apt to think is best. How important, then, that we have good and suitable books, pleasant and interesting conversation, and some work suitable to their years, that they must perform every day at the proper time. They should also keep their room and clothes in order as much as possible; have a place for everything and everything in its place. "Order is Heaven's first law." None should be allowed to disturb their belongings; their rights should be held just as sacred as those of the older members.

Some people think it a very fine thing to tease and torment children. Parents should not allow this; by compelling them always to act on the defensive, they will soon learn to be aggressive, and very often the sad results in after life are traced to the spoiling of the disposition of the young. Teach them that they are not to be loved for their pretty looks, or fine clothes, but for their good behavior and gentle ways.

McGill University.

ANNUAL MEETING OF CONVOCATION.

The annual public meeting of Convocation of McGill University was held in the William Molson Hall in the University yesterday afternoon for conferring degrees in medecine and law. The attendance of friends of the students and of education was very large, the spacious hall being filled to overflowing. The additional interest shewn by the fair sex over previous years is also worthy of remark. Shortly after three o'clock the members of Convocation passed through the hall wearing their picturesque academic robes and ascended the platform. Mr. Peter Redpath one of the Vice-Chancellors of the University presided in the absence of the Chancellor the Hon. Mr. Justice Day. The Professors of members of Convocation representing the Medical Faculty occupied seats to the left of the Chancellor. The Governors and those representing the legal profession occupied seats to his right, and included the following: Professors—Drs. Scott, Fenwick, Howard, Wright, Craik, Godfrey, Roddick, Girdwood, Ross, Gardner, Osler and Shepherd. Members of Convocation—Drs. J. Reddy, G. A. Baynes, Proudfoot, Webb, Bessy, Mondelet, T. J. Alloway, Principal Dawson, Rev. Dr. Leach, Rev. Dr. Wilkes, Messrs. C. J. Brydges, J. M. Molson Professors Kerr, Wurtele, Rainville. Lecturers.—Lareau, Archibald and others.

The meeting was opened with prayer by Revd. Archdeacon Leach, after which Mr. W. C. Baynes, B. A., the secretary, read the minute of last convention.

In the absence of the Dean of the Faculty of Medecine, Professor Scott, M. D., read the following report of that faculty: The total number of students enregistered in this faculty during the past session was 148, of whom there were from Ontario 85; Quebec, 42; Nova Scotia, 4; News Brunswick, 3; P. E. I., 5; West Indies, 1; United States, 7. The following gentlemen, 21 in number, have passed their primary examinations on the following subjects: Anatomy, Physiology, Chemistry, materia medica and pharmacy, institutes of medecine, and pathology and zoology. Their names are as follows: Armstrong G. E., Bell Jas., Boyle Albert, Brodie John, Burland Samuel, C., Cannon Gilbert, Cameron Duncan, H., Collson Robert, Cotton Cedric L., Faulkner Daniel W., Fortier Alexandre, Fraser Alex. C., Gillies John A. F.; Greaves Henry C.; Jameson Alexander, B. A., Lane John A., Law Wm. K., Miner Frank L., Oakley William D., Park Geo. A., Smellie Thos. S. D., M. A.

The following gentlemen—thirty-four in number—have fulfilled all the requirements to entitle them to the degree of M. D. C. M. from this University. These exercices consist in examinations, both written and oral, on the following subjects:—Theory and Practice of Surgery; Theory and Practice of Medecine; Obstretics and Diseases of Women and Children; Medical Jurisprudence and Hygiene, and also Clinical Examinations in Medecine and Surgery, conducted at the bedside in the Hospital.

The names of the successful candidates, and the subjects of their Thesis are as follows:—

Baynes Donald, M. A. L. R. C. P., Bronchocele; Campbell James, Spasmodic Asthma; Clarke Fincastle G. B., Bloodless operations; Colquhoun George, Clinical Reports; Cook Guy R. B. A., Bronchitis; Cooke Wm. Henry, Food; Coyle Henry W., Erysipelas; Craig Thornton, Erpsipelas; Cream Thos. N., Chloroform; Cruthers Wm., Clinical Reports; Eberly Henry A., Pneumonia; Gray John S., Uterine Hemorrhage; Greer Thos. A., Spermathorrhœa; Hunt Henry, Clinical Notes; Johnson Jas. B., Hospital Reports; Lang Christopher McL., Ankylosis; Levi Reuben, Lobar Pnemonia; McIlmoye Henry A., Typhoid Fever; Metcalfe Henry J., Diabetes Mellitus; Munro Alex., Tubercle; Murray Chas. H B. H., Hospital Reports; Powell Robert W., Surgical Cases; Reddy Herbert L., B. A., Hospital Reports; Ritchie Arthur F., B. A., Tubular Wephritis; Robertson Stephen J., Typhoid Fever; Secord Levi, Pulmonary Euphysema; Smith Wm., Alcohol; Snider Fred. S., Acute Atic Rheumatism; Stevenson Chas. N., Clinical Reports; Storrs Arthur, Post Mortem Hæmorrhage; Stroud Chas. S., Syphilis; Young Philip R., Hospital Reports.

One of the above named gentlemen (Mr. R. W. Powell) is under age. He was, however, passed all examinations and fulfilled all the requirements necessary for graduation, and only awaits his majority to receive his degree. The following gentlemen, seventeen in number, passed their examinations in theoretical chemistry:—A. S. Greenwood, James J. Guerin, J. P. Cameron, F. J. Stafford, M. C. Rutherford, J. R. Fraser, Milton McCrimmon, H. H. Gardner, W. B. Gibson, A. P. Chisholm, Robert Bell, H. N. Vineberg, George W. Kirk, N. Ayer, D. F. Smith, J. K. McKinlay, M. Bicksted.

Students who have passed examination in Botany and Zoology.

BOTANY—CLASS I.

W. J. Neilson, W. D. Oakley, B. F. Butler, D. F. Gurd, W. C. Baker, J. S. Brown, H. Stevenson, J. Smith, W. F. Shaw, J. B. Lawford, A. W. Imrie, E. McNeil, J. B. Carman, P. E. Carman, W. H. Gardner, H. F. Feader, S. A. McDonald, O. Henderson, A. D. Webster.

CLASS II.

J. McCarroll, J. G. Scott, S. McNee, T. A. Kidd, F. McLennan, F. Hana, W. Sutherland, J. C. McRae, F. H. Newburn, J. M. Wilson, H. B. Burwash, C. J. Jamieson, J. H. Smiley, M. Seymour, M. Bicksted.

CLASS III.

W. K. Law, C. D. Bancroft, J. S. Edwards, S. K. Herbert, B. Menzies, E. W. Lettree, W. J. Prendergast, T. A. Page, R. C. McDonald, G. W. Oliver, C. A. Wengant, G. C. McCullock, J. E. McEwenne, W. D. M. Bell, J. A. Mathice, G. Tate, A. Props, W. Karmon, W. B. Hall, W. F. Mullen.

The ceremony of conferring of degree of M. D. C. M. was next proceeded with. Professor Dawson and Professor Craik officiating. So soon as this was completed.

Dr. RITCHIE, a graduate, delivered the valedictory.

Professor RODDICK, M. D., followed in an address to the students, of which the following is a summary:—In accordance with time honoured custom, I am here on behalf of the medical faculty of this University to offer to you their hearty congratulations on being this day the recepients of the highest honour which it is their privilege to bestow. After a long, and in the main tiresome race, lasting over four years, you have at length reached the winning post, and are here to-day in the presence of a gracious, admiring and sympathising public receiving the laurels you have so honourably won. You are to be congratulated, gentlemen, not only on having graduated in medecine, but in having done so at such an auspicious a period in the history of our profession and country. There never was a time among us in this Dominion when energetic workers, honest, conscientious men, were in greater demand. It is certainly time to be up and doing when we have one of the chief leaders of public opinion in our midst — a journal of which we would have expected better things upholding the cause of quackery and imputing to us the basest of motives because we attempt to vindicate our right and raise our voices on behalf of a deluded people. The Toronto *Globe* asserts with an air of apparent earnestness that to molest these charlatans in their absurb and often nefarious practice is an unwarranted interference with the liberty of the subject. It positively contends that anyone who considers himself competent either from some inherited charm or from mere———— of treating the various troubles of the flesh to which humanity is heir should be

allowed to do so unmolested. The evil consequences of such a policy cannot be estimated. It is difficult to understand indeed how it should find so strong an advocate in this otherwise respectable mouthpiece of public opinion. This journal chooses to ignore the time and pains we have expended, and the pecuniary outlay we have made in endeavouring to acquire a thorough knowledge of our profession, so that we may the better inspire the over credulous with our abilty to heal. Forsooth we are told that to raise a warning voice against, and endeavour by legislation to rid society of these its evil members, is to destroy the liberty of the subject. It is not jealously that impels us in our action against those clever rogues, who gain immense riches, where honest men starve. Give us our dues; it is not jealously but an honest desire, irrespective of our profession, to protect our fellows from fraud. You are called upon then gentlemen on the very eve of your professional birth to do battle for legitimate medicine. This refers especially to those of you whose lot will be cast in the neigbouring province of Ontario, which seemed to be a favorite haunt of these proteges of the Toronto press. The influence which many of you must of necessity wield in a few years cannot better be employed than in seeking to fill the legislatures of our respective provinces with men, either professional or otherwise, having decided, and intelligent views on the all-important subject of medical legislation. The fact is we are not so well represented at court as we might be—that we are not the power in the state we should be. It is true there are members of our profession in our general and local parliaments, but how feeble are their voices when we would expect to find them the loudest in debate; there are two or three who do us credit and whom we delight in honouring, but even they, after long political careers, fighting for their party principles, or from other causes, have become estranged from us, and are more famous as financiers or expoundors of the law than as sons of Esculapius; besides, our services. I contend, are required in the Legislature of our country as much on the country's account as on our own. Those great measures of sanitary reform, which must, in the natural course of things be accomplished, will of necessity be a great part of the work in our hands. And then we can better procure an enactment respecting vital statistics. the proper ventilation and drainage of cities, and then we can better devise measures for the prevention of epidemics, and the grappling with them when they appear. It is our province; it belongs by right and title to us; and while the financiers of our Legislatures are squabbling over their dollars and cents and ways and means; while the manufacturers are keeping a weather eye open to the tariff, let us have men there irrespective of party, so that Liberal and Conservative, Whig and Tory, will rally round the old flag, remembering that our motto is, *Sanitas, sanitatum omnia sanitas.* As medical men, and taking, as you no doubt will, a prominent part in the community in which you work, you will be expected to give a ready and intelligent opinion of various topics of the day, having reference to sanitary science. The relation to defective drainage, impure air and adulterated milk in the causation of typhoid fever, will come up for constant discussion. The subjects of over-crowding, adulterating food, impure occupations, &c., and the influence they exert in multiplying causes of desease, and in the production of desease, will be matters on which you will be expected to be thoroughly versed. There is nothing, however, in the discussion of which your temper and ingenuity will be more sorely tried than in the defence of that priceless preventative, vaccination. Have at your finger ends some of the more familiar facts connected with this all-important subject, in order to meet the objections of those who have, unfortunately may be, erroneous views on the subject. Relate to them, for instance (among other facts which he named), that during the epidemic in London in 1863, how it was found out that the best vaccination was more than thirty times as protective as the worst; and the worst was more than fifty-seven times better than none at all. Tell them that in the City of Montreal, during the last year of your studentship, the total number of deaths was 6,321, of which nearly one-eighth, or 784, were from small-pox, and of these 653 were unvaccinated French-speaking Canadians. If these facts fail to make an impression on these unbelievers, quote the statistics of the Montreal General Hospital during the past year, in which it is found that fifty per cent, of the unvaccinated died, whereas only four deaths occurred among all those who had been vaccinated, and where re-vaccination had been successfully performed only two cases had been admitted, and those were of the mildest type. The Doctor went on to advise the students on the responsability of their position, the necessity for study, their duty to their patients, to the poor, and as to their professional and gentlemanly behaviour towards one another.

PROFESSOR W. H. KERR, Q. C., in response to the request of the Chancellor, read the statement of prizes, honors and stand of the students in the Faculty of Law, sessions 1875-6, as follows:—

THIRD YEAR.

In this year thirteen candidates presented themselves for the degree of whom twelve were successful, as follows: Messrs. Doherty, Greenshields, McDonald, Scallon, Desmarais, Desaulniers, Glass, Taché, Bissaillon, Peradeau, Gelinas, LeBourveau. Of the above gentlemen Mr. S. A. LeBourveau did not pass the examination on account of illness, but his proficiency being well known to the faculty he has been granted an ægrotat degree. Mr. Samuel Hutchinson also attended the lectures until about the 1st of February when he was seized with illness, and about the 1st March, was removed by death. This gentleman gave promise of eminent ability, and the thesis which he composed was adjudged considerably superior to that of any of his competitors.

General Standing of Students in the Graduating Class—1st, Charles J. Doherty and James N. Greenshields, equal: 2nd, John S. McDonald.

Elisabeth Torrance. Gold Medal.

In the competitive examination for this medal, two gentlemen, Messrs. James N. Greenshields and Charles J. Doherty were, in the opinion of the Faculty, of equal merit, and having obtained very high marks, viz., 665 out of a possible 700, the Faculty resolved to recommend the Corporation to issue duplicate medals, which the Corporation consented to do, so that each of the gentlemen is entitled to receive the Elizabeth Torrance gold medal for the present session. The prize for the best Thesis was awarded to Odilon Desmarais, whose thesis was judged next best after that of Mr. Hutchinson, who is accordingly entitled to deliver the valedictory address on behalf of the graduates.

Ranking of students in the respective classes for the third year:...

International Law and Commercial Sales—Professor Kerr—1st, Doherty; 2nd, Greenshields.

Commercial Law—Professor Wurtele—1st, Greenshields and Doherty, equal; 2nd, Bissaillon.

Roman Law—Professor Trenholme—1st, Doherty and Greenshields, equal; 2nd, Lebourveau.

Civil Procedure—Professor Doutre—1st, Doherty; 2nd, Greenshields.

Civil Law—Professor Rainville—1st, Greenshields; 2nd, Doherty.

Criminal and Constitutional Law—Lecturer Archibald—1st, McDonald; 2nd, Doherty and Greenshields, equal.

Legal History and Bibliography—Lecturer Lareau—1st, Greenshields; 2nd Doherty.

Students who have passed the sessional examinations for the second year in the order of merit:—Messrs. Goodhue, Purcell, Capsey, McCorkill, Garon, Palliser, Charotte, Monk, Lasalle, Beaulieu, Pelletier, Knapp, Ethier—13.

In this year twenty students presented themselves for examination of whom seven were unsuccessful.

General Standing.—1st, Goodhue, 1st, prize; 2nd, Purcell, 2nd prize.

Ranking of students in the respective classes for the second year:—

International Law and Commercial Sales.—Professor Ker—1st, Capsey, Professor's prize; 2nd, Goodhue.

Commercial Law—Professor Wurtele—1st, Purcell; 2nd, Goodhue.

Roman Law—Professor Trenholme—1st, Goodhue; 2nd, Purcell.

Civil Procedure—Professor Doutre—1st, Goodhue; 2nd, Purcell.

Civil Law—Professor Rainville—1st, McCorkill, 2nd, Purcell.

Criminal and Constitutional Law—Lecturer Archibald—1st, Purcell; 2nd, Goodhue.

Legal History and Bibliography—Lecturer Lareau—1st, Goodhue; 2nd, Purcell.

In the first year thirty-six students presented themselves for examination, of whom thirty-three were successful, whoso names are as follows, in the order of merit:—Messrs. Brooke, Crimmen, Mignault, Taylor, Corregan, Cross, Pope, Crothers, McGoun, Duffy, Bissonnette, Abbott, Cavanagh, Varin, Brown, Gaudet, Lanctot, Ritchie, McKinnon, Morrie, Berthelot, Leblanc, Adam, Ward, Laviollette.—33.

General Standing in all the Classes—1st, Brooke, Crimmen, and Migneault, equal, 1st prize.

Standing of students in the respective classes in the 1st year.

Obligations—Professor Wurtele—1st, Gaudet and Migneault, equal; 2nd, Brooke, Crimmen, and Taylor, equal.

Roman Law—Professor Trenholme—1st, Crimmen and Crothers, equal; 2nd, Abbott and Taylorl equal.

Civil Procedure—Professor Doutre—1st, Duffy; 2nd, Brooke and Drimmen, equal,

Civil Law—Professor Rainville—1st, Migneault and Corregan, equal; 2nd, Varin and Brooke, equal.

Legal History Lnd Bibliography—Lecturer Lareau—1st, Migneau; 2nd, Brooke.

Professors Kerr and Wurtele then proceeded with the award of prizes and honours to students in law, and afterwards assisted Principal Dawson in the conferring of the degree of B. C. L., after which Mr. O. Desmarais read the valedictory in the French tongue.

Lecturer Archibald, B. A., B. C. L., addressed the successful law students on the duties shortly devolving upon them, taking occasion to pay a hight tribute to the memory of their late fellow student, Mr. S. Hutchison.

After the conferring of the degree of D. C. L.,

The Hon. M. Justice Torrance rose and addressed the students of both faculties as follows :

Gentlemen Graduates,—You have till to-day been candidates for degrees in Law and Medecine. Henceforward you will be candidates for the reward of your professions and for the support and favor of the community in which your lot is cast. Think of the origin and meaning of this word candidate. It is the Latin word *candidatus*, and was applied to the aspirants for political honours in ancient Rome, because they made their canvass clothed in robes of white *toga candida* as emblematic of their personal pury. Let us hope, in the best and highest sense, that the honour and purity of your professional careers may be among your best and highest aspirations. Let me here say that hitherto you have been recipients of knowledge, and now you go forth to be the educators and instructors —the—advisers—of others. Let me express the earliest hope that you will continue your education in the future with large and liberal views of what that education should be. A clergyman who knows nothing but divinity should not be called an educated man ; and a lawyer whose knowledge is confined to his codes, and a physician whose knowledge is limited to his medical books and his cases, should not be called an educated man. Dr. Whewell explained education to be the process by which an individual is made a participator in the rational, the true, the beautiful and the good. Some one has justly remarked that if we rest contented with what we have acquired during our boyhood and youth, and merely trust to the old stories of thought and information for the benefit of others, we will be like one who draws water from a stagnant pool instead of seeking it from the over flowing springs of a clear and sparkling well. Do not neglect your education as men any more than you should neglect your professional education in the future. A few words here to the graduates in law. Your profession concerns the administration of justice, which has well been termed the grandest position which has been assigned to man by the great Author of his being—the function which, of all others, most surely satisfies his noblest instinct. "There is not, in my opinion," says Sir James Macintosh, in language which has been often quoted, "in the whole compass of human affairs, so noble a spectacle as that which is displayed in the progress of jurisprudence ; when we may contemplate the cautions and unwearied exertions of wise men through a long course of ages, withdrawing every case as it arises from the dangerous flexible rules ; extending the dominion of justice and reason, and gradually contracting within the narrowest of possible limits the domain of brutal force and arbitrary evil. " There is a particular feature about the training of the advocate—that it is necessarily severe—in a manner not to be found in the other professions, and I make the observation without in the least assuming or asserting that the weight of care and responsability is greater in the profession of law than the other learned professions, but in one respect the profession of the advocate is peculiar. The physician plies his noble and beneficent vocation in the privacy and silence of the sick chamber. His skill and sagacity on the one hand, or his unskillfulness on the other, have not that publicity which attends the advocate.

Again, the teacher of divine truth from the pulpit expounds his doctrine—powerfully or feebly—soundly or erroneously—to a silent and respectful audience, without audible questioning or contradiction. Far otherwise is it with the advocate. Every statement and proposition with he makes, or advances, is scrutinized, and, if possible, called in question by a vigilant an interested adversary. The controversy is decided by an experienced Judge, indifferent to either side, without any motive but the promotion of truth and justice. And even the decision of the Judge is not final ; the party aggrieved has his recourse to a higher tribunal if the decision is erroneous. And it is also to be borne in mind that the decision of the Judge is rendered with reasons in the presence of, and under scrutiny of, an experienced and vigilant Bar, who surround the parties and the Court, and are observant spectators of the proceedings. This publicity in the practice of the law—this open public controversy—assuredly necessitates a hardy training on the part of the members of the profession. To the graduates in medicine I would say this—that if your noble and beneficient vocation is plied in the privacy of the sick chamber, often away from the scrutiny of human eye, and with only the Unseen Eye watching your actions, your profession for this reason more especially appeals to your conscientiousness, for your patient is, humanly speaking, entirely at your mercy, and is unreservedly and entirely in your hands. Do you not labour all the more tenderly, the more pitifully, because suffering humanity lies so helplessly before you? Let me say this also—that it appears to me that your profession is peculiarly honoured by the fact that the Divine Being, who became incarnate and dwelt among men, plied your vocation when he healed the sick and cured divers diseases. And among the triumphs of Christian missions in this century I do not know anything more interesting and significent than the fact that the mighty influence for good of your profession is enlisted in Christian missions by the formation of so-called medical missions—by the union of your profession with the vocation of the Christian missionary, so that the healing of the body may lead to the healing of the soul.

I will close with *two* thoughts as to the duties of you who have to-day become graduates. It is a counsel continually given to you, but which deserves well to be dwelt upon, because of its importance —that you should be ever learners. Your profession is one of research and study as well as one of action. You must, by mental activity, keep abreast the march of human progress, or you will be inevitably left behind in the race. Take an illustration. I was a student in Paris 1840, at attended a course of lectures on chemistry given there at the School of Medecine by Mr. Orfila, the celebrated Toxicologist. The science of chemistry has made great progress since then, ad if I had then received from Orfila all the knowledge of science then professed by that great chemist, and if I now attempted to teach a class of chemistry on the knowledge of 1840 communicated by Orfila, I need not say how valueless that teaching would be to the students of 1876. It is plain then that the acquisitions of middle age should be a great advance upon those of youth. Do not repine if the first years do not fulfil your expectations the future will afford you golden opportunities for systematizing your knowledge, and utilizing your experience, and in this way you will pursue studies without which no valuable results will ever be retained. In such wise do justice to your profession, and (a celebrated London physician said) rely upon it your profession will one day do justice to you. Another counsel I would give you is to beware how you regard any portion of your professional duties as "drudgery." There is no more dangerous rock on which to make a shipwreck of your prospects. Regard everything—the minutest details —in your profession as interesting—every instrument the lawyer draws or copies, and copying is most important. Lord Chancellor Eldon, who was the most eminent Equity judge in England of his time, said that in his younger days he copied everything in the shape of a deed that he could lay his hands on. Every time you attend public offices, the chamber of counsel, or the judges' or are in Court, or the Hospital, at all these times let your observation be incessant. The late Sir Astley Cooper, one of the most eminent of English surgeons, when giving some interesting particulars about his early career, said that he counted nothing drudgery when he entered his profession, to which he gave himself up altogether, doing everything that he could find to do, never caring how disagreeable or repulsive it was,—nor whether he did it over and over again ; for he reflected that *practice* would make perfect ; and by doing so, he had seen out and done better than a good many fine gentlemanly fellow-students.

The Acting Chancellor said as Dr. Hingston had not been present for a number of years at the annual convocation, and as he was then in the room he would call upon him to state whether the University had made any progress since he left the institution.

His Worship Mayor Hingston drew an amusing contrast between the past and present. He was certainly impressed when looking over that vast assemblage with this contrast. When he graduated, there were precisely five ladies present, and it was at that time an understood thing that no lady under a certain age or over good looking should approach the college grounds. He was pleased to say that it was now fashionable not only for the aged but also for the youth and beauty of the city to attend on such occasions.

The Rev. Dr. Wilkes closed the proceedings with prayer.

POETRY.

The Pilgrims of the Plains.

BY JOAQUIN MILLER.

They climbed the rock-built breasts of earth,
The Titan-fronted, blowy steeps
That cradled Time where Freedom keeps
Her flag of white-blown stars unfurled.
They turned about, they saw the birth
Of sudden dawn upon the world,
Again they gazed ; they saw the face
Of God, and named it boundless space.

And they descended and did roam
Through levelled distance set round
By gloom. They saw the silences
Move by and beckon ; saw their forms,
Their very beards, oft time in storms,
And heard them talk like silent seas.
On unnamed heights black-blown and brown
And torn like battlements of Mars.
They saw the darknesses come down.
Like curtains loosened from the dome
Of God's cathedral, built of stars.

They saw the snowy mountains rolled,
And heaved along the nameless lands
Like mighty billows, saw the gold
Of awful sunsets, saw the blush
Of sudden dawn, and felt the hush
Of Heavens when the day sat down,
And hid his face in dusky hands ;
Then pitched their tents, where rivers run
As if to drown the fallen sun.

The long and lonesome nights ; the tent
That nestled soft in sweet of grass :
The hills against the firmament
Where scarce the moving moon could pass
The cautious camp, the smothered light,
The silent sentinel at night !

The wild beasts howling from the hill :
The troubled cattle bellowing ;
The savages prowling by the spring,
Then sudden passing swift and still,
And bended as a bow is bent,
The arrow sent ; the arrow spent
And buried in its bloody place,
The dead man lying on his face !

The clouds of dust, their cloud by day,
Their pillar of unfailing fire,
The far North Star. And high, and higher—
They climbed so high it seemed eftsoon
That they must face the falling moon,
That like some flame-lit ruin lay
Thrown down before their weary way.

They learned to read the sign of storms.
The moon's wide circles, sunset bars,
And storm-provoking blood and flame ;
And like the Chaldean shepherds came
At night to name the moving stars ;
And in the heavens pictured forms
Of beasts and fishes of the sea ;
And marked the great bear wearily
Rise up and drag his clinking chain
Of stars around the starry main.

OFFICIAL NOTICES.

Ministry of Public Instruction.

APPOINTMENTS.

The Lieutenant-Governor has been pleased, by order in council, dated the 20th day of March, 1876, to make the following appointments :

SCHOOL COMMISSIONERS.

County of Bagot, Saint Ephrem—André Belleval, junior, *vice* Pierre Savoie.

County of Bonaventure, Saint Charles de Caplan—Messrs. Roch Xavier Bigaouette and Sifroi Lepage, *vice* Messrs. Fréderic Frelatte and Salomon Babin.

County of Gaspe, Cap aux Os—Messrs. J. B. Ouellet, Thomas Smith, John Robert and Louis Lemieux.

County of Kamouraska, Pohénégamook, (Saint Eleuthère)—Revd. Edouard Roy and François Morin, Eucharisto Bouchard, Eusèbe Sirois and Joseph Lebel.

County of Ottawa, Hull—The Reverend Father Delisle Reboul, Moïse Daigneau, Joseph O. Laferrière, Hercule Pinard and Emery Perin.

County of Quebec, Cap Rouge—Michel Hamel, junior, *vice* Jean Moisan.

TRUSTEES.

County of Gaspe, York—Messrs. James Fitzpatrick, Charles Lebouthillier and Martin Power.

County of Gaspé, Gaspé South—The Reverends Majorique Bolduc, Alexandre Gellis and Michael Dowling.

MISCELLANY.

How shall we Spell ?—How our English words shall be spelt is a matter concerning which the great mass of those to whom the language is native appear to have pretty fully made up their minds. They intend to tolerate no change in the present orthography. Those who put forth proposals for its alteration, whether in certain words and classes of words only, or upon a wider scale, are set down and laughed at without mercy. No one, we presume, will be found to question that one very important reason why we cleave to our present modes of spelling is the simple fact that they are ours. We have learned them by dint of diligent study, if not of painful effort ; we are used to them ; our spoken words in any other garb would look to us strange and quaint, or even ridiculous. To give them up would imply a revolution—such an overthrow of a grand institution, firmly rooted in the usages and predilections of a wide community, as no race or generation has ever yet been willing to permit, save under the pressure of some great and profoundly-felt necessity. And we acknowledge no such necessity ; far from this, we think we see a variety of reasons why our favourite institution is preferable to any that could be put in its place. Precisely here, however, we ought to feel most distrustful of the ground we stand upon It is easy to overvalue, or even wholly to misinterpret, reasons apparently favouring conclusions which we are already determined to reach ! Let us, then, enter into a summary examination of the alleged advantages of our present English orthography, for the purpose of determining both what is their actual worth and how far we rely upon them in our defence of the institution. *Alleged Advantages of the Present Spelling.*—First to be noticed among the advantages referred to is the convenient discrimination to the eye of honomyms, or words which are pronounced alike but have a different origin and meaning. A familiar example is afforded us in the written distinction of *meet*, *meat*, and *mete*, and another that of *to*, *too*, and *two*. Such triplets, as every one knows, are not very rare in our language, and couplets of the same sort are to be counted by scores. Now, we have to observe that any credit which is given to our written language in this particular must be taken away from our spoken language. We gain nothing by writing the uttered syllables *meet*, and *too* in a variety of ways, unless, when uttered, they are of ambiguous meaning. If our minds are for even the briefest moment puzzled by such expressions as "he goes *to* Boston," "he goes *two* miles," "he goes *too* far," not knowing which *too* is meant in either case, then it is worth while to avoid a like difficulty in our reading by spelling the word differently. But who will consent to make so damaging an admission ? There is a language in the world (the Chinese) where the words are so few, and their meanings so many, that orthographic differences are brought in as an important aid to comprehension, and the writing follows, upon a grand scale, not the utterance alone but the signification also. Thus there are more than eleven hundred ways of writing the word "e," and other words count their representatives by hundreds, by scores, or by tens. A host of devices have to be resorted to there in spoken speech to get rid of ambiguities which are wholly avoided in written. Our English, however, is not afflicted with such poverty of expression as to be brought to this strait. We have also three different "founds"—"found," from "find ; " "found," meaning "establish ;" and "found," meaning "cast," "mould," between which, we venture to say, no soul ever thought of making a confusion, though they are all spelt with the same letters. Is there any one who cannot tell, by the ear or by the eye, when "cleave" means "stick together" and when it means "part asunder ?" Who ever find any more difficulty in separating bear, "carry,"

than in separating either of these from bare, "naked?" Of how infinitesimal value, then, is the Chinese principle as introduced into English usage! We may blot out every vestige of it from our vocabulary to-morrow, and it will never be missed; the written language will still continue to be as good as the spoken; and if anyone is not content with that, let him migrate and learn another tongue. If the principle is to be kept and made much of, let us agree to give it a more consistent application; let us not spell alike words so different in history and use as the three "founds;" when the same vocable diverges into meanings widely dissimilar, let us vary its spelling a little to match, not writing in the same way "she became ill" and "her dress became her," not telling the lawyer and the lover go to "court" in the same orthographic fashion—yet more, when there has been a divergence of pronunciation as well, as when a "minute" portion of time has become a "minute." Let us separate he "read" from he "reads," as we have separated he "led" from he "leads;" above all, let us not compound together in spelling words distinct in every respect—derivation, sense, and utterance—like the verb "lead" and metal "lead."—*From "Linguistic Studies."* By W. D. Whitney, Professor of Sanskrit and Comparative Philology in Yale College, New Haven. U. S.

—Some years ago (says a contemporary) a learned and ingenious writer in the *Quarterly Review* attempted to establish the relation of cause and effect between national character and verbal forms of salutation. In the "shalum"—peace—of the Jews he traced the appreciation of a nomadic people of what was to them the highest because rarest good, and he matched it with equivalent words of greeting among the Bedouins and the American Indians. In the "*chairé*"—be glad—of the Greeks, he saw plain indications of a disposition whose leading tendency and chief aim were to rejoice and be merry. In the "salve"—be healthy—and "vale"—be strong—of the Romans, he perceived manifestations of the spirit befitting the conquerors of the world, who only in later and degenerate times condescended to the "Quid agis, dulcissime rerum," the "Quid agis," as he conjectures, being far older than the "dulcissime rerum" with which Horace connects it. What could be more appropriate than the "sanità e guadagno"—health and gain—of the commercial Genoese, the "crescete in sanità"—grow in piety—of the Neapolitans, and the "rab vash"—your slave—or "kholop vash"—your serf—of the Russians? Similar lessons are to be derived, it was contended, from the "comment vous portez-vous" and "comment ça va-t il" of the "French, the "buenas tardes" and correlative replies of the "Spaniards, the "wie gehts" and "leben Siewohl" of the Germans, the "come sta" and "come state" of the Italians, the Hoe vaart's ge" of the Hollander, the "Hur mär ni" of the Swede, the "lev-vel" of the Dane, and so forth. "How is your stomach?" says the "Heathen Chinee;" "Do you perspire copiously?" inquires the polite Egyptian: both of which particular queries, and many more besides, are included in our comprehensive formula, "How are you?" But "How do you do?" can only be described as "an epic self-contained," if as it is affirmed, it "is sufficient to account for Trafalgar, Waterloo, steam-engine, railway, Exeter Hall, *Times* news paper *Punch* itself," and if, as it is affirmed, it ought to have been made the chorus of "Rule Britannia." "To do! Surely this contains the whole essence of productive existence, national or individual. To do! It is the law and the prophets, the theorick and practick, the whole contexture of life. And this doing is so universal among us, it is such a completely recognised and accepted fact, that we do not ask a man, What do you do? but. How do you do? Do you must; there is no question about that"—a very useful thing to be remembered, in one sense, in all business transactions. The correct theory of "ave: "—"Nunc et in æternum, Frater, ave atque vale."

—The Lancet calls attention to an additional and unsuspected evil due to the prevalent mania for competitive examinations. These so called "test or individual capacity" have been multiplied in all directions, and have increased in severity. "Formerly," says the *Lancet*, speaking rather of private than of public schools, when competition was limited to the struggle for a college scholarship or a place in the university class-list, and the army, navy, Civil Service, and East India Company's appointments were only to be obtained by interest, schools were selected on different principles than are now recognized. Then more regard was paid to the plan and method of education, and almost every school possessed in this respect an individuality of its own. At the present time the object of education appears less a matter of steady training and the patient laying of solid foundations, than a system of successful cramming, and a school seeks sor reputation more in the number of public prizes annually won by its scholars than for the soundness of its scholarship. For a considerable period after the first introduction of the competitive system the great public schools made no effort to extend their system of education. Consequently large proprietary colleges, such as Marlborough and Cheltenham, were founded in order to meet the new requirements. These establishments differed only from the public schools in affording facilities for the study of the extended range of subjects required for the public competitive examinations, the traditions and methods of the older schools being, however, still closely adhered to. The success and popularity attending these proprietary colleges led to the establishment of others, though not on such a sound basis, and the multiplication of so many institutions, all struggling for fame and existence, has led, we fear, to the introduction of a very unsound system of teaching." The *Lancet* has examined tne prospectuses of many of these schools, and it has generally found the hours of work to be excessive, ranging from forty-five to forty-eight hours a week, which give a daily average on four whole school-days of eight to nine hours, and six hours and a-half on two half holidays. Eight hours a day of mental work is a considerable strain even for an adult; how much more for mere children, who have also to expend so much force to meet the vital requirements of the growing frame! Moreover, in adult life, the work, being more mechanical, is accomplished with less intellectual excitement than is the case where fresh facts and new ideas are constantly being acquired. As a general rule, the *Lancet* is of opinion that thirty-five hours sf school work a week for boys under fourteen, and forty-two hours for boys above that age, is as much as the health and strength can fairly stand; while the success that still attends the old public schools, who rarely exceed these hours, shows that they are amply sufficient for educational purposes. This is a subject to which "parents and guardians" cannot too speedily turn their attention, for it is certain that from them and not from schoolmasters the remedy for the evil thus exposed must come in the first instance, The extent to which the evil is carried on, especially in the neighbourhood of London, is extraordinary. A gentleman connected with an educational establishment of high standing, and who has often spoken with authority on education questions, considers the subject to be worthy of Government inquiry. Only a Royal Commission could get at the real truth, and reveal the amount of mischief that has been done by the reckless employment of the grinding system. In the same manner that factory children are protected from excessive physical labour ought the children of our middle-classes to be protected from the excessive strain that ambitious parents and schoolmasters would put on them. It should never be forgotten that youth is the period of growth and development, and that the boy is then laying in the stock of health which has to bear him bravely through the vicissitudes and struggles of adult life. A few hours of work can speedily be made up later on, but nothing can restore the tone to the jaded nerves exhausted by premature toil and excitement.

The Way Out of Poverty.—There are many thousands of respectable persons and families in our land at the present time greatly crippled by pecuniary embarrassments, and not a few are grinding in the prison-house of poverty, and know not the way out. In most cases there is an honest and honorable way out. The way marks are good common sense in exercise, industry, self-denial, good economy, and pay as you go. Let us look at these waymarks on the road to prosperity:

1. There are thousands ground down in perpetual poverty simply because they do not and will not bring their good sense to bear upon their circumstances. They build castles in the air, and these come tumbling down on their heads. Instead of depending upon small and honest gains with saving, they attempt to raise themselves by artifices and doubtful speculations. Wisdom in all these matters are profitable to direct. A daily dose of good common sense, applied outside and in, would straighten things out and set them to building on the rock of industry and frugality, and not on the vagaries of an erratic fancy.

2. The poor man, if he means to rise must look well to his time and skill. These are both marketable commodities, and bring money. Every laboring man must make the best possi-

ble use of his time and skill. They are his stock in trade, and should not remain idle. A day wasted is at best like throwing so much money in the fire. If there is no work in the shop, in the office, or store, there is in the garden, in the wood-house, or in the house, making improvements and putting all right. Allow no time to run to waste; no time for visiting, for excursions, or pleasure-taking when wants call for toil and attention. "A diligent hand maketh rich." A poor man who loafs away $50 a year soon squanders enough in this way alone to furnish himself and family with a good cosy home.

3. Another way-mark on the road from poverty to prosperity it self-denial. You do not need fancy clothing, nor fancy food, nor fancy amusements, nor society. Our real wants are few and simple. The most of us may weed out much from our tables, our wardrobes, and our sensuous pleasures, and our health and happiness would be improved, and much money for the day of need. Tobacco, patent medicines, artificial drinks of all kinds, confectionery, pastry and condiments may be banished from our lips, hearts and tables with a great saving of time, health and money. I speak from many years of experience and know whereof I affirm. Self-indulgence is a prodigal and a spendthrift, and comes to want and often to crime.

4. Another way-mark of prosperity is good economy. This consists in making a good and wise use of our means, our time, talents, earnings, and income. The economist is a neat, tidy, industrious careful, trustworthy man, who allows nothing to waste through neglect. Such men with a common chance always work their way up hill and enjoy more and more of the sunshine of proseprity.

5. But there is one more way-mark. It is: Live within your income and pay as you go. A poor man should never get in debt in a single penny for his living. If you ever mean to work up into competency, shut down the gate of debt so far as current living expenses are concerned, and live wholly on your earnings and earnings in hand. It is miserable slavery to be in debt for your daily bread. This is inexcusable shiftlessness. It should be abandoned at once and forever by every poor, family. If you can live at all out of the alms house, you can live on your earnings, or income. Do not allow them to run away from each other. Keep income and earnings face to face, and what you cannot now pay for, go without till you can. Wear the old hat, the old coat, the old boots, dress and bonnet till you can pay for a new one. So of your food; if you cannot pay for roast beef, go without it till you can; if you cannot pay for butter, sugar, eggs, etc., let them go till you can. Trim in, and trim down the expenses and pay as you go, and bring the living freely, fully inside of the income, and you will soon be in easy circumstances. These simple rules, heartily adopted and faithfully carried out, and nine out of ten now embarrassed and put to their wits how to live, floundering in the slough of honor, would speedily find the sunny path of prosperity, and become independent in their circumsiances.—P. R. R., in *N. Y. Witness.*

Higher education.—At the quarterly meeting of the Teachers' Association held on Friday evening last, (24 March) Dr. Kelly remarked upon the above subject as follows:

The English Universities have taken an active part in this great educational movement. The effect of their school examinations has been wide-spread and beneficial. Dotheboys Halls have been closed, and the governesses in *Vanity Fair* have found their occupation gone. Year by year the applicants for the University School certificates have increased. For the Cambridge certificate there were in 1871, 2,843 candidates; in 1872, 3,075; in 1873, 3,550; in 1874, 4,288 of which 2,652 were boys, and 1,636 girls.

Oxford, London and the College of Preceptors, have followed this lead of Cambridge. Last year over 10,000 boys and girls came forward to test their training by the University standard.

The success of this effort, with the growing demand for higher education, has resulted in the "University Extension Scheme." This contemplates the establishment in every important town of an institution which shall provide the highest education possible; its lecturers, to be men of provéd ability and experience; its curriculum, to embrace a course of instruction worthy of the great universities; its aim, to make the man at the desk, and the workbench, and the young woman in the shop, and in the drawingroom all alike members and students of the University. So far this scheme has met with more than success. Take Cambridge alone. In 1874 *three* cities took advantage of it. Last year lectures in the Physical Sciences, Logic, History, and in English language and literature, were delivered to 3,500 students in *sixteen* of the great commercial centres of Northern and Central England.

In this movement the increased educational advantages of women are specially noteworthy. In 1869 Girton College for ladies was established at Cambridge, mainly to prepare students to pass the University examinations. At the general examination for the ordinary degree of B. A. last year a student of Girton stood at the head of the list, and "in 1873 another sent in the best philosophical papers for the year—an achievement which would have earned a college fellowship for her if she had been a male student of the University." Although passing all the required examinations, Cambridge yet refuses to grant ladies the honour of its degrees. In this respect, however, Cambridge is behind the University of London.

At the late intercollegiate contest in New-York, in which eleven American colleges were represented, the prize in Greek was won by a lady from Cornell.

In selecting English authors for school study we should begin with what is attractive—as, for instance, Robinson Crusoe and Longfellow's Evangeline. These might be fitly succeeded by the stirring lays of Macaulay, Scott's Ivanhoe and Lady of the Lake; then Irving's sketches or selections from Addison's Essays, a poem of Milton, of Spencer, or of Chaucer. In the same advanced classes there might be a careful study of an oration of Burke or Pitt, of a drama of Shakespeare, and of selections from the unrivalled prose writings of Lord Bacon. Three hundred years ago English literature was represented by Chaucer and Gower, and students were, therefore, compelled to turn to the ancient classics. Now we have a literature which is unsurpassed, worthy of the labour of the scholar, and placed within the compass even of the poorest.

Darkness or light.—In the rooms more commonly used the blinds are kept closed, the slats being turned barely enough to permit the entrance of sufficient light to see to work by. The sunlight is not permitted to enter on any account. Frequently the upper part of the window is covered by an opaque and closely-fitting shade. At the very best the window is shaded above and the light is thrown in under the eyes, or on a level with them.

Now this is not the best for health nor for pleasure. Nature's method is to give light from above, and plenty of it. Our windows are usually placed not far from right. If we leave them all exposed, the light will all come in mostly at the top, and fall on our work and on our eyes from above, as it should. This saves our eyes from many a strain and from premature weakness. Besides this, to work in the light, and even in the sunlight, is far more invigorating to the general health than to work in the shade. People hear this frequently. It is iterated and reiterated in the papers continually, and yet we see intelligent women sitting day after day in rooms where it is barely light enough to see to work, and never once letting the direct sunlight into them. The very flies are too sensitive to live in such an atmosphere.

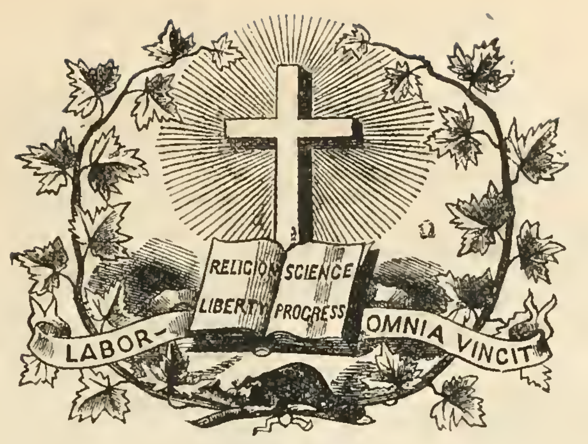
The exposed window is far pleasanter also. It give us in many cases a landscape view like a picture every time we raise our eyes from our work, and that, too, without the trouble of going to the window to look out. It gives us a view of the sky, which we do not get at all by the ordinary method of draping, and this is one of the brightest and most changing views we have. It gives us an abundance of light for our work. This strengthens the eye. We can hardly get too much of it, unless the sunshine falls directly on our work or on our eyes.

"But these bare windows look staring."

Do they? Well, that depends very much on how you have been accustomed to look at them. Still, if you wish some ornament for the parlor windows, drape them with lace or Swiss.

For the other rooms, let this drapery be only a light frill across the top of the window. This is very pretty and inexpensive and you will come to like it in time, better than the other. —*From Science of Health.*

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Random Thoughts on Astronomy.

What a magnificent scene would we behold could we view the universe as it is ! Let the limits of our vision be extended till we could look over the whole creation, and let us be endowed with a faculty to comprehend the vastness of the mighty orbs that whirl around us, and to measure and understand the immense distances which separate us from them, and them from one another, and what a panorama of glittering worlds—what a scene of awful grandeur and sublimity would be presented to our view !

But even the *imagination* becomes bewildered, and as utterly and hopelessly fails to comprehend the immensity of creation, as it does to touch the confines of space or eternity.

And how miserably do *figures* succeed in giving us an adequate idea of the magnitude or distances they are employed to represent in astronomy ! How meaningless to us are the enormous numbers which indicate the weight in tons of some vast sphere, or the distance in miles from the solar system to some of its neighboring systems !

" How far is it to the sun ? " we ask the astronomer, and he tells us that it is *ninety-one million five hundred thousand miles.* " And how far to the pole star ? " " Not less than *two hundred eighty-five trillions of miles.*" Now the first idea that strikes us is *that it is a great deal farther to Polaris than to the sun ;* but *how much* farther, we have not the slightest conception.

Indeed, so vague are our conceptions of numbers above millions or billions that the impression upon the mind would scarcely have been more forcible had we been told that the distance is two hundred eighty-five *quintillions*, instead of so many *trillions* of miles ; or at least it would seem greater only in about the proportion of five to three, while the real difference of these numbers is as 100,000 to 1.

A railway train traveling day and night at the rate of fifty miles an hour, without making any stoppages, would run from New York to San Francisco in sixty-six hours, or less than three days. At the same rate it would make the circuit of the earth at the equator in a little less than twenty-one days ; and should it then leave the earth *en route* for the sun, it would arrive at the solar station in 76,250 days more, or about 209 years ; but to reach Polaris, it would require no less than 636,600,000 years. Had Adam taken passage in such a train moved on at the above rate without a single pause until the present time, less than the $\frac{1}{100000}$ part of his journey would now be accomplished. And had Eve started at the same time upon a tour around the earth, traveling just fast enough to finish her journey by the time Adam reached Polaris, she would *now* have traveled *less than a quarter of a* MILE.

Even light, which moves with the fearful velocity of 183,000 miles per second, requiring but eight and a quarter minutes to pass from the sun to the earth, is nearly *fifty years* in crossing this vast chasm.

The time required for the light of the *nearest* fixed star to reach the earth is about three years and nine months ; while that of some of the farthest visible to the naked eye requires 125 years. Over what an infinite expanse must the eye wander, as we gaze at the starry heavens on a clear night !

And yet the number of stars visible to the unaided eye is but as a handful of sand scattered upon the seashore when compared with the myriads revealed by the telescope, to say nothing of the countless multitudes so inconceivably distant as to appear as " mere fleecy whiteness " in the most powerful instruments.

The Galaxy or "Milky Way" (to which our sun and system belongs) is said to contain alone upward of *twenty-one million of stars;* and these stars are *suns*, and we may reasonably suppose each to be surrounded by a retinue of worlds like those attendant upon our sun. What an innumerable number of minor worlds must then exist! And as the mind labors to comprehend the extent of the magnificent scene, what eager questionings crowd upon us! Are all those worlds inhabited? Do living, thinking beings dwell upon them. If so,

"———— Do they bear
The stamp of human nature? Or has God
Peopled these purer realms with lovelier forms
And more celestial minds? Does Innocence
Still wear her native and untainted bloom?

"Has War trod o'er them with his foot of fire?
And Slavery forged his chains; and Wrath, and Hate,
And sordid Selfishness, and cruel Lust
Leagued their base bands to tread out light and *truth*,
And scatter woe where Heaven had planted joy?
Or are they yet all paradise, unfallen
And uncorrupt? existence one long joy,
Without disease upon the frame, or sin
Upon the heart, or weariness of life;
Hope never quenched, and age unknown
And death unfeared; while fresh and fadeless youth
Glows in the light from God's near throne of love?"

But the imagination only wearies itself in its attempts to solve the mysterious problems, and we cannot fail to be impressed with the utter insignificance of man, and the omnipotence of Him who

"Summons into being with like ease
A whole creation and a single grain,"

and we are led to exclaim with the Psalmist—"When I consider thy heavens, the work of thy fingers, the moon and the stars which thou hast ordained; what is man that thou art mindful of him? and the son of man that thou visitest him?"

But while we marvel at the *sublime* and *infinite*, we cannot fail to be delighted with the *beauty* and *harmony* everywhere displayed in the celestial regions.

What ideal scene of majestic beauty can surpass that presented by the solar system, could we view it as a whole!

Blazing out from the centre and illuminating the whole grand spectacle, a fiery globe 800,000 miles in diameter, and flying around this with inconceivable velocity, the planets, each at the same time whirling upon its own axis, and carrying with them their satellites, which also revolve about them as they revolve about the central sphere; the comets, with their long fiery trains, sweeping up till they almost graze the sun, and then speeding away again in their long elliptical orbits, crossing the path of the planets and darting out into the profound depths of space till they seem lost in the trackless waste of ether; meteors and shooting-stars darting hither and thither, and finally the whole system itself in motion, plunging through space with a velocity of more than 17,000 miles per hour, yet with every orb moving with the utmost precision and regularity, would indeed be a scene of grandeur surpassing anything of which we are able to conceive.

Or consider the effects which must be produced in some of those systems having *colored suns*. Take, for example, a planet revolving about Psi Cassiopiæ. This is a triple star, consisting of a red, a blue, and a green sun. Imagine a world bathed in soft-blue sunshine one day, the next in emerald green, and this succeeded by a fiery-red day. Or think of the beautiful phenomenon of a bright-green sun just rising to view, while another blood-red or violet-blue one is sinking beyond the opposite horizon.

Many of the star-clusters and nebulæ present to the astronomer the most beautiful and pleasing pictures. A cluster in Toucan is described as being "compact and of an orange-red color at the centre, while the exterior is composed of pure white stars, making a border of exquisite contrast." In the Southern Cross is a group of over a hundred stars of various colors, looking upon which, says Herschel, is "like gazing into a casket of precious gems."

Indeed the whole heavens, viewed from certain standpoints, would appear to flash with jewels of every conceivable hue; and throughout the universe we meet with objects and scenes which evince the same Divine love of the beautiful which we behold in the painting of the delicate petals of the summer flower, and the rich tints and graceful arch of the rainbow.—Chauncey C. Jencks.

The Teaching of Natural Philosophy in Schools.

Read by the Revd. P. Magnus, B. A, B. Sc.

Before the College of Preceptors.

No fact is, at the present day, more generally recognised than that Science-teaching should form an essential element in Education. But a long time often elapses between the recognition of a principle and its practical application; and in the Sixth Report of the Royal Commission on Scientific Instruction, published in the middle of last year, we are surprised by the statement that of the endowed schools of the country not more than thirty per cent. have introduced Science into their school course; and that of these scarcely more than one-quarter devote to it as much time as four hours a week. The statistics furnished by the Commissioners are so important that I quote them *in extenso*. "Information was also sought from the Head-masters of the 202 schools which appear in the Report of the Schools Inquiry Commission as possessing endowments of over £200 per annum, and from 128 of these schools replies have been received......... Among the 128 schools from which we have received returns Science is taught in only 63, and of these only 13 have a Laboratory, and only 18 Apparatus, often very scanty. Out of the 128 schools definite information has been received from 87. Of these 30 allot no regular time whatever to scientific study; 7 only one hour a week; 16 only 2 hours; while out of the whole number only 18 devote as much as four hours to it." If this is the case with respect to the boys' endowed schools, we cannot help fearing that the statistics would present a still more unfavourable appearance, if they had been collected from private adventure schools of both sexes.

The reasons of this indifference to Science are not far to seek. They lie partly in the inertia common to all institutions, in consequence of which they yield but gradually to change; and partly in the supposed cost of introducing Science-classes into schools, in the difficulty of obtaining Science-masters, in the general uncertainty with respect to the branches of Science that ought to be taught, and in the adverse influence of the older universities, which have not hitherto attached the same importance in their examinations to Science as to Language and Mathematics. All these causes, we may hope, will gradually be removed. In the meantime public attention cannot be too frequently called to the advisableness of making Science lessons a necessary

part of school education; and the discussion of methods of teaching particular branches of Science, if it do no more than rouse an interest in the subject, is likely to be attended with some beneficial results.

With this object before me, I have undertaken, at the request of the Council, to offer a few remarks on the teaching of Natural Philosophy in Schools. The term Natural Philosophy is sufficiently vague to cover several branches of Physical Science. As employed by some writers, it actually includes the whole range of Physics. By others it is limited to the Sciences of Heat, Light, and Electricity, as distinguished from the subjects generally known as Mechanics and Hydrostatics. The term "Mechanics," again, is made by some to include the application of the principles of Dynamics to the motion and equilibrium of solid and fluid bodies, whilst others restrict its use to solid bodies only, and others again, following the example of Newton, use the word in its strict etymological signification as applying to the theory of Machines. Other terms sometimes employed are Mechanical Philosophy and Experimental Physics: but whilst the former of these can hardly be regarded as an improvement on the term Mechanics, for which it is occasionally substituted, the latter is almost too general to be restricted to any particular branch of Physics, since all Physical Science rests on experiment for its basis, and the appeal to experience is necessary for the verification of conclusions which are deductively arrived at. The term Experimental Physics, however, serves very fairly to designate those branches of Physics, such as Heat, Electricity, and Magnetism, in the explanation of which experiment is the essential instrument, and to which the application of number is extremely difficult, and, except in a few cases, only partially satisfactory; but we are still left without a descriptive title for Mechanics and Hydrostatics, unless we use the ambiguous term Mechanics to include both. A better distinction is found in the fact that, whilst Physics is essentially the science of motion, the so-called Experimental Sciences treat of the invisible motions of the molecules of which bodies consist, and the Mechanical section treats of the visible motion of bodies as such, whether they be solid, liquid, or gaseous. Much precision, therefore, would be introduced into the subject if these two branches of Physical Science were known as Molecular Physics, or the Physics of Molecules, and Molar Physics, or the Physics of Masses.

The branches of Physics most commonly taught in schools, viz., Statics, Dynamics, and Hydrostatics, are generally comprised under the term Natural Philosophy, which is so used in the regulations of the Council of this College, and, till quite recently, in those for the Matriculation of the University of London, though it now includes the additional subject Heat. It would seem, therefore, that Natural Philosophy is generally understood by schoolmasters to include Molar Physics only; and in this restricted sense I have used the word in the title to this paper.

Notwithstanding the experience that has been gained in teaching this branch of Physics, the failures of candidates at elementary examinations are very numerous, as may be seen from the statistics of the London University Matriculation which show that over thirty-five per cent. of all the candidates who have presented themselves during the last five years have been rejected in Natural Philosophy. Presuming, therefore, that the examiners are not over exacting, we must necessarily infer that the subject itself is still imperfectly taught in very many schools.

The causes of these failures are not difficult to find. In the first place, those who teach the subject are often themselves insufficiently informed, and possess very little knowledge of the best methods of instruction. Men who have been educated at a good school, and who have afterwards graduated in honours at one of the Universities, not only have learnt a respectable amount of Classics or Mathematics, but have been so taught that they are capable of applying to the instruction of others the methods by which they acquired their own knowledge. But this is hardly the case with Science. There are very few Science-teachers who have had the advantage of sound instruction during their school-course, and they consequently have to invent for themselves a method, when they are called upon to instruct young pupils. It is a truth well recognised in this institution, that an extensive acquaintance with a subject, and the power of teaching it, do not necessarily go hand in hand; and although doubts may very well be entertained with respect to the possibility of theoretically showing teachers how to teach, it is quite certain that those who, as children, have been clearly and methodically instructed will become better teachers than those who have missed this training. Every good teacher knows how frequently he recalls to mind the difficulties he himself experienced as a learner, and how, by reflecting on the causes of these difficulties, he afterwards succeeds in removing them from the minds of his pupils.

Another reason for the failure of candidates in elementary examinations in Natural Philosophy, is the short period of time which in most schools is set apart for the study of the subject. Boys are not expected to obtain a knowledge of Latin or Greek by attending a course of lectures during the last few months of their school career, but they are carefully grounded during several successive years in the elements of these languages. Moreover, their instruction is based on some plan or method, so that they are enabled gradually to advance, by regular and progressive stages, to the acquisition of higher knowledge. But, there are few schools, below those of the first grade, into which any systematic method of teaching Science has, up to the present time, been introduced. In fact, Science is too often regarded as a body of truths, the full significance of which a pupil ought to grasp as soon as they have been once presented to his notice, but for the mastery of which anything like the same kind of training as a boy receives in learning Greek or Latin is wholly unnecessary.

It very frequently happens that boys who are going to be examined in Natural Philosophy receive six months' instruction in Mechanics during the year preceding their examination. They may have had no previous training which might fit them for the acquisition of scientific principles, and give them the power of applying these principles to cases coming under their notice; but, with minds wholly unaccustomed to scientific thinking, they are brought face to face with the problems of Mechanics; and when, as must naturally happen, these boys fail to satisfy the examiners, the examinations are pronounced too difficult.

This leads me to consider what amount of school time ought to be devoted to the teaching of Natural Philosophy, and at what age a pupil should begin to receive instruction in this subject.

With respect to the age at which children should enter upon the study of Scientific subjects, a great deal has been said of late, some teachers advocating a very young age, and others considering that the study of these subjects should not be commenced till nearly the end of the school career. Practically, the opinion of

the latter is carried into effect. Complaints have recently been made that the knowledge of Science required from candidates for the Leaving-certificate Examinations of the Oxford and Cambridge Conjoint Board is very much less in quantity, and much more easily acquired, than the knowledge of Classics. This, no doubt, is true; and the reason assigned is, that the number of years devoted to the study of Classics, or even of Mathematics (including Arithmetic) is much greater than the maximum period given in the best schools to Science. But I cannot help thinking that this ought to be so. Science, as a part of general education, is principally useful when regarded as the means of developing the reasoning and observing faculties of those who study it; and, if too exclusively pursued, to the neglect of other equally, if not more important subjects, it is likely to result in a one-sided and inefficient training. There is no doubt that the study of Language and of Number ought to precede the study of Science; for language is necessary to thought, and Number gives definiteness and accuracy to the conclusions at which reason enables us to arrive. They are both the instruments of Science; and hence, from a logical point of view, they should be previously studied.

Then again, we must remember that youth is the period of life when the memory is most efficient, and is therefore the age which is best adapted for the acquiring of languages. There are many persons who, having in their early youth neglected the study of Classics, are never able to obtain the culture and elevated sympathies which those studies afford. But a knowledge of Science can be gained at any age; and what is learnt with difficulty in early youth is often more easily acquired when the mental powers have already been subjected to some amount of training. Much, however, may be done in very early years, without prejudice to other studies, in developing a taste for Science. If the faculties of observation, which at this period are always active, be wisely exercised, a child may acquire, during the early years of his education, the knowledge of a considerable number of scientific facts, which will afterwards afford him subject-matter for reflection. This is proved by the interest children so often exhibit in collecting coins, stamps, butterflies, &c. But Science proper, or systematised knowledge, involving the relations of cause and effect, and of facts to the principles that explain them, ought not, I venture to think, to occupy the attention of young persons until their minds shall have been duly prepared for it by other work.

In the teaching of Science there are two separate stages. There is the methodical collection of facts, and there is the explanation of these facts by the referring of them to general laws. The collection and arrangement of facts, which may be regarded as preliminary to real Science-teaching, may engage children at a very early age, and may be made a useful exercise in all the classes of an ordinary school. No subject seems to me to be better suited for giving precision in the description of natural objects than Botany; and the facility with which it can be taught, even to very young children, and the increasing interest which the study of it evokes, would seem to constitute it one of the best subjects for the purposes of scientific education, and to render it well adapted to schools of all grades and of both sexes.

But the subject I am now considering cannot be treated as a descriptive science; it is essentially a science of reasoning; and the pupil must be trained to see, in the facts themselves, instances and illustrations of general principles. Science-teaching of this kind should not commence at too early an age, and the pupil should not at first be occupied with a detailed study of any one particular subject. The teaching, in the beginning, should be general and only simple explanations of the more common phenomena should be attempted. A course of lessons, comprising much that is included in Erdkunde, or Physical Geography, ought, indeed, to precede the specific study of any one branch of Physics. Lessons such as these would introduce the pupils to a variety of different scientific facts, and would call forth a desire on their part to obtain a more intimate acquaintance with the processes of nature. These lessons might be followed up by more detailed instruction in the elements of the science of Heat, the study of which subject seems to be well adapted to open the pupil's mind to the comprehension of a number of frequently observed and interesting appearances. At the same time the teacher might practically explain the various units of measurement commonly employed in Physics, an accurate knowledge of which is very essential to the pupil's subsequent progress.

At this stage of the learner's school course he might with advantage commence Mechanics. Although many principles in Molar Physics can be explained to those who know no more Mathematics than is involved in an acquaintance with the rules of Arithmetic, the pupil's progress will be much more satisfactory, if he does not commence it till he has acquired some knowledge of the elements of Algebra and Geometry. The opportunity of being better grounded in Mathematics would be afforded to him by his pursuing the study of it during the two or three years that should be devoted to the introductory Science lessons of which I have just spoken. A long course of preliminary mathematical instruction is not necessary; but if a pupil enters on the study of Mechanics without having attained to so much knowledge of Algebra and Geometry as a boy of average ability might gain in two years, the subject will present unnecessary difficulties, which will impede his progress, and give him a distaste for the study. The simplest problems of elementary Mechanics too often prove a stumbling-block to young students, on account of their very inefficient knowledge of even the elements of mathematical reasoning. Among the many advantages which the study of Mechanics includes, certainly not the least is the excercise which it affords to the pupil, in applying numerical relations to physical principles, and in obtaining, possibly for the first time, definite and exact knowledge of force as a magnitude. In Mechanics, a large number of isolated facts are capable of being connected together by a simple numerical relation, and a few elementary laws having been ascertained, the pupil who knows even a little Mathematics is able to deduce therefrom important results, many of which can be approximately verified by experiment. It seems to me, therefore, very advisable that boys and girls at school should not be permitted to commence the study of this branch of Physics until they know fairly Simple Equations, and as much Geometry as is comprised in the First Book of Euclid.

I do not think that Mechanics ought to be considered simply as a branch of Experimental Physics: it is essentially a deductive Science, and should be taught as such. In saying this, I do not wish to convey the impression that experimental illustrations are valueless, or that the pupils should not be trained to conduct experiments for themselves; but what I mean is, that the deductive character of the science should be carefully kept in view. In Mechanics a variety of different results can be calculated from two or three general laws quantitatively expressed. Moreover, many of these results are of so simple a character that they can easily

be realized in imagination, even without the aid of practical illustrations. This is not the case in the so-called experimental sciences. In these the result cannot always be easily calculated with exactness, and the phenomena themselves are complex, and require to be seen in order that they may be understood.

If Mechanics be taught to beginners as a mere experimental science, it is taught with very little advantage. The student misses the exercise, se useful to him, of deducing, by the aid of simple numerical and geometrical relations, exact results from elementary principles. If he learns these laws qualitatively and not quantitatively, and must appeal to experiment for a knowledge of what will happen under each variety of circumstances, his progress will necessarily be retarded. Very little is gained, therefore, by teaching the principles of Mechanics until the pupil is sufficiently advanced to be able to apply a general principle to a particular instance, and to deduce theoretically a result expressed in exact quantities.

In the teaching of Mechanics, the several stages of the Deductive method may be carefully distinguished and exemplified. The science rests on certain general laws, which have gradually been discovered by a series of observations and experiments. An outline of these experiments should be presented to the pupil, so that he may know the nature of the processes of reasoning by which these principles have been establish. This may be easily done in explaining such laws as the Composition of Velocities, Newton's third Law of Motion, the principle of Archimedes, or Boyle's law. The nature of these observations or experiments having been explained, and if possible practically illustrated, the student should be taught to employ them in the explanation of various simple phenomena. He should be made to feel that the law he has obtained is an instrument enabling him to explain the cause of a variety of different facts which daily impress his senses. The endeavour to apply a general principle to the explanation of appearances, the nature of which had previously been unheeded, is a useful mental exercise, which helps to develope scientific thinking.

Having traced this law in a variety of instances, the pupil should be trained in deducing, by the aid of number, definite results corresponding to particular problems will present very little difficulty when the pupil knows that they are special cases of the law in question. The result having been theoretically determined, should be experimentally verified, whenever the means for such verification are at hand. It is most probable that the two results so obtained will slightly differ. The cause of the difference should then be carefully pointed out; and if the discrepancy has arisen from circumstances which can be numerically expressed and calculated, the theoretical should be modified accordingly. When this shall have been done, the problem may be said to be completely solved, and the principle involved in it to be verified. The student should be taught to distinguish between the two kinds of experimental illustrations that have been brought before him—between those which led to the discovery of the law and those which served to verify it. The former only are true experiments, real instruments of research; the latter serve to test and verify the law previously ascertained. The practical illustrations which lecturers so often call experiments, can hardly be regarded as such, since they are not employed for the discovery of new truths, but for exemplifying those previously known. The student should be told that experiment as a means of research is a laborious process —a groping in the dark for something not yet found, and involves a series of trials under a variety of circumstances. Such experiments are very different from the carefully prepared illustrations which serve to show the truth of a known law

The principles of Mechanics, and such deductions as easily follow from them, being presented to the pupil in this way, the subject will naturally arouse his interest, and the study of it will become a most important instrument in the education of his mental powers; for he will not only learn the elements of the science he is studying, but he will also obtain some knowledge of the method of science generally, and habits of exact thinking, which are more useful than the acquisition of mere facts, and which constitute Science-teaching an essential element in general education.

There are few branches of Science which admit so completely of being treated by the Deductive method as Mechanics; and for this reason, as well as for the power it gives the student of explaining the causes of some of the most elementary phenomena of Nature, Mechanics seems to me to be the suitable introduction to the systematic study of Physical Science, and a most valuable discipline for boys and girls during their school course.

The method of dealing with this subject, which I have very faintly indicated, enables the teacher to keep clear of two imperfect methods, one or other of which is frequently adopted. The one is the purely mathematical; the other the purely experimental. We very often find Mechanics treated as a branch of Mathematics, and the conclusions are made to follow from certain elementary principles, in much the same way as the results of algebraic reasoning are deduced from the properties of quantity and number. This theoretical method of treating the subject, in which is found no indication of the experiments whence the laws of Mechanics were first derived, nor of the observations that suggested them, would appear, if we may judge from the text-books still in use, and from the examination papers one sometimes sees, to be even now very commonly employed. Although the higher branches of Mechanics, involving Mathematics of a complicated character, may be advantageously studied as a purely theoretical science, the same method is not well applicable to the teaching of the elements of the subject. Much of the benefit which Mechanics, considered as a means of mental culture, is capable of yielding, is lost when the subject is treated from an abstract point of view, as a branch of Mathematics and nothing more. The study of Mechanics ought to serve as an introduction to other sections of Physics; and the pupil ought to gain from it clear ideas with respect to those fundamental laws of force which underlie the whole area of Physical Science. But this is hardly possible if, before the pupil has had the opportunity of becoming practically acquainted with the action of moving bodies on other bodies at rest and in motion, and of thus acquiring some clear idea of what is understood by momentum, force, and energy, or of seeing separate motions combined, so as to gain a practical notion of a resultant, he is made to learn Duchayla's proof of the Paralelogram of Forces.

The other method of teaching Mechanics, viz. by experiment only, in which the results obtained are qualitatively but not quantitatively true, seems to me to be hardly more satisfactory. The chief interest of mechanical experiments consists in their being absolutely true, in their agrreing eactly with the results of previous calculation, or in their differing therefrom by somme amount that can be easily accounted for. If these calculations are omitted, two-thirds of the interest

and value of the study are gone. It ceases to be the means of giving clearness and exactness to the ideas which previously existed in the mind. That unsupported bodies fall to the ground is an experience very early and generally acquired; but the study of Mechanics gives a precise and definite form to our ideas with respect to falling bodies which enables us to calculate their velocity, time of motion, &c., and to see the connection between the law of a falling body and the nature of the earth's orbit about the sun. So, too, every one knows what is meant by work and energy; but the meaning of these words is never clearly apprehended till they have been fixed on the mind by means of definite numerical relations, which show, not only what energy is, but how a given quantity of energy may be numerically expressed.

So far, I have not referred to the practical work to be done by the pupil himself, which it is generally admitted should form an essential part of Science Education. The amount of such work, which can be done by the pupil, depends a great deal on the practical appliances possessed by the school, and upon the time the pupils are able to devote to the subject. I am inclined to think that the first principles of Mechanics should be carefully mastered before the pupil begins to perform for himself any but the simplest experiments, and that his special taste and inclination should be consulted with respect to the nature of the work which he should undertake. Very many opportunities will be afforded to the teacher in the course of his lessons, of encouraging his pupils in conducting simple experiments for themselves: but time does not now permit me to consider this matter as fully as I might wish.

With respect to the order in which the subjects comprised under Mechanics should be studied by the pupil, I cannot help thinking that it is very desirable that he should be made familiar with the laws of Motion, and with facts that illustrate them, before he enters upon than part of the subject known as Statics. As Motion is universally present, it may be regarded as the most elementary physical condition of matter, and the pupil ought therefore, at the commencement of his studies, to be made familiar with its principles and laws. Moreover, the idea of Force is necessarily and rightly connected with that of Motion, and those two ideas ought never to be dissociated from one another in the student's mind. In spite of the many advantages which result from clearly explaining the principles of Dynamics before introducing the pupil to Statical Problems, this order of studying the subject is by no means uniformly adopted. When Statics is made to precede Dynamics, not only is the natural order inverted, in which the ideas connected with Mechanics ought to enter the mind, but the whole subject is rendered unnecessarily difficult and abstract. Observation is constantly making us familiar with moving bodies, and consequently Mechanics should be treated, as far as possible, as the Science of Bodies in Motion. The theory of Equilibrium should be presented to the student as a series of deductions from the Laws of Motion. The principle of Energy, so important in the discussion of all Physical problems, should be clearly explained to the pupil, at a very early stage of his lessons; and this principle should be illustrated by the action of simple machines, which should be considered in their practical bearing as instruments producing motion and not rest.

In illustrating this part of the subject, the experiments cannot be too simple; for there are so many facts coming within the range of observation of the pupil, on which his thoughts can be easily directed, and which the principles he has acquired enable him to explain, that the roughest and simplest experiments suffice. In teaching Hydrostatics there is more scope and more necessity for carefully conducted experiments. The facts to be explained are not quite so familiar to the beginner. He knows less about the behaviour of liquids and gases than of solids, and consequently practical illustrations give him more assistance in realizing the principles involved in the explanation of the phenomena. At this stage of his progress he might with advantage be permitted to conduct for himself such simple experiments as finding the specific gravity of solid and liquid bodies, and determining the volume of a certain quantity of air under different pressures. In all cases, however, the results to be arrived at should be independently deduced from the first principles of the science.

With respect to the use of text-books, it is hardly necessary to say that the teacher should use no text-book whatever when actually engaged in giving his lesson to his class. Not only is it necessary that the pupils should have confidence in the powers of their teacher, but the teacher himself cannot possibly appeal to the minds of his pupils unless his explanations spring spontaneously from his own mind, and are clothed in the language which seems at the moment to best fit them. Without sympathy between the teacher and the taught, there can be no good instruction. The teacher, by frequent questions, should lead his pupils to evolve for themselves the results to which he is endeavouring to conduct them. Even the numerical examples by which he illustrates his result should be constructed as they are required; and, it is far less important that they should *come out* neatly, than that they should exactly correspond with the principle that is being treated. A text-book, when a suitable one can be found, is useful to the pupils for home work, in helping them to write out and revise their notes, and in furnishing them with additional information beyond what the teacher may have time to give.

I will add, in conclusion, one word with respect to the use of formulæ in solving problems. It often happens that a pupil who has been taught to make extensive use of formulæ, finds himself unable to solve a problem till the correct formula has been given to him, when his solution consists only of the substitution of certain numbers for certain symbols, and of the application of the ordinary process of solving an equation to the determination of the result. Now, I need not say that such work does not necessarily show any scientific knowledge whatever. In all cases I would urge that the use of formulæ should, as far as possible, be discouraged. Pupils should be exercised in discovering the scientific principle rather than the symbolic formula of which their problem is an example, and they should then endeavour to build up their result by simple reasoning.

I know very well that different teachers adopt different methods, and that amid many methods that are good no *one* can be pronounced *the best*. I am therefore fully conscious that much that I have said may appear unduly dogmatic, and open to various objections from persons whose opinions justly carry more authority than mine. The nature of my subject, however, rather than my own wish, has forced this tone upon me. I can only say, that, whilst I shall be very glad, if my somewhat disconnected observations shall have furnished those who may have given to the subject, less consideration than I have with any idea that may help them in making the study of Natural Philosophy more interesting to their pupils. I shall be still more pleased

to learn from others who are more experienced than I, and who may possibly dissent from much that I have advanced, better methods of teaching than I have suggested. I need hardly add that, althoug I have had occasion frequently to refer to teachers and pupils in the masculine gender, I have endeavoured to keep in view the requirements of girls' as well as boys' schools, and to make my remarks equally applicable to either. —(*The Educational Times.*)

McGill University.

ANNUAL PUBLIC MEETING OF CONVOCATION FOR THE CONFERRING OF DEGREES IN ARTS—A LARGE ATTENDANCE—ORDER OF PROCEEDINGS —THE PRIZE LIST—ADDRESS BY THE VICE-CHANCELLOR, &c.

Notwithstanding the inclemency of the weather yesterday afternoon, 1st May, a very large number of ladies and gentlemen assembled in the William Molson Hall, to witness the ceremonies attendant on the conferring of the degrees and award of honors in the Faculty of Arts.

Shortly after 3 o'clock the governing body of the University, headed by the President and Chancellor of the University, Hon. Charles D. Day, LL. D , D. C. L., entered and took their seats on the dais. There were present, besides the President, the Hon. James Ferrier, Senator. M. L. C., Andrew Robertson, M. A., Q C., Peter Redpath and Sir Francis Hincks, Principal Dawson, M. A. LL. D., F. R. S., Vice-Chancellor. The following Fellows of the University were also present :—The Ven. Archdeacon Leach, D. C. L , LL. D., Vice-Principal and Dean of the Faculty of Arts; Alexander Johnson, M. A , LL. D. ; the Rev. George Cornish, M. A., LL. D., Professor of Classical Literature ; the Rev. Henry Wilkes, M. A., LL. D., Principal and Professor of Theology and Church History in the Congregational College of British North America ; the Rev. Dr. McVicar, LL. D , Principal and Professor of Theology in the Presbyterian College of Montreal ; R. A. Ramsay, M. A., B. C. L., Representative Fellow in Arts ; John Reddy, M. D., Representative Fellow in Medicine ; J. J. McLaren, M. A., B. C. L., Representative Fellow in Law ; Edward Holton, B. C. L , Representative Fellow in Law ; Samuel B. Schmidt, M. D., Representative Fellow in Medicine ; J. R. Dougall, M. A., Representative Fellow in Arts ; W. H. Kerr, D. C. L., Q. C ; the Rev. J. Clark Murray, LL. D., ; His Lordship the Bishop of Montreal, the Hon. Mr. Justice Sanborn, W. E. Scott, M. D., Professor of Anatomy ; Robert Howard, M. D., Professor of the Theory and Practice of Medicine ; C. F. A. Markgraff, M. A., Professor of German Language and Literature ; Robert Craik, M. D., Professor of Chemistry ; P. J. Darcey, M. A., B. C. L., Professor of French Language and Literature ; G. E. Fenwick, M. D., Professor of Surgery ; Gilbert P. Girdwood, M. D., Professor of Practical Chemistry ; George Ross, M. A., M. D., Professor of Clinical Medicine ; Bernard J. Harrington, B. A., Ph. D., Professor of Assaying and Mining and Lecturer on Chemistry; William Osler, M. D., Professor of Institutes of Medicine ; C. H. McLeod, Bachelor of Applied Science, Superintendent of Meteorological Observatory ; the Rev. J. F. Stevenson, B. A., L. B., London, Eng. ; the Rev. Canon Bancroft, D. D., LL. D. ; the Rev. Charles Chapman, M. A., London University ; Archibald Duff, B. A. ; John S. Hall, Bernard J. Harrison, Fred. W. Kelley, Ph. D., Cornell ; the Rev. Robert Laing, Kutusoff McFee, C. H. McLeod, and W. C. Baynes, B. A., Secretary and Bursar.

The proceedings were commenced with prayer by the Ven. Archdeacon Leach, who afterwards read the following list announcing the award of prizes and honors to Students in Arts :—

FACULTY OF ARTS.

PASSED FOR THE DEGREE OF B. A.—*In Honors.*— Alphabetically arranged.)—Crothers, Robert Alexander ; Duffy, Henry Thomas ; Graham, John ; Lyman, Henry Herbert ; McGoun, Archibald ; Rexford, Elson Irving.

Ordinary.

Class I.—Pedley, Hugh ; Watson, Alindus S. Class II.—None, Class III.—Cox, Jacob Whitman ; Mathewson, John ; Gray, Wm.

PASSED IN THE INTERMEDIATE EXAMINATION.

Class I.—Ross, James ; Ross, Donald C. ; Donald. Class II.— Dawson, Blakely, Thornton, Guerin. Class III.—Torrance, Lyman, Clarence ; McLaren, Sweeny.

PASSED FOR THE DEGREE OF BACHELOR OF APPLIED SCIENCE.

Course of Civil and Mechanical Engineering—(In order of relative standing.)—Chipman, Willis ; Hawley, David F. Hetherington, Frederick.

HONORS AND PRIZES.

Graduating Class.—B. A. Honors in Classics.—Robert A. Crothers —First Rank Honors and Chapman Gold Medal.

B. A. Honors in Natural Science.—Henry H. Lyman—First Rank Honors and Logan Gold Medal.

B. A. Honors in Mental and Moral Philosophy.—Archibald McGoun—First Rank Honors and Prince of Wales Gold Medal. Elson Irving Rexford—First Rank Honors.

B. A. Honors in English Language, Literature and History.—John Graham—First Rank Honors and Skakspere Gold Medal. Henry Thomas Duffy—Second Rank Honors.

Third Year.—Eugène Lafleur—First Rank Honours in Mental and Moral Philosophy and Prize ; First Rank General Standing. Charles H. Gould—First Rank Honours in Classics and Second Prize ; Prize in German. Mathew H. Scott—First Rank Honours in Natural Sciences and Logan Prize ; First Rank General Standing. Jervois A. Newnham—First Rank Honours in Mental and Moral Philosophy ; Price in Zoology. Calvin E. Amaron—First Ranks Honours in Mental and Moral Philosophy. William H. Warriner—First Rank General Standing ; Prize for Collection of Plants ; Stewart Prize for Hebrew.

Passed the Sessional Examinations—Lafleur, Warriner, Scott, Mewham, Gould, Robertson, Amaron, McGregor (A.F.), Forner I., McGibbon.

Second Year.—Donald C. Ross.—(Prince of Wales College, Charlottetown, (P.E.I.)— Second Rank Honours in Mathematics and Prize ; First Rank General Standing ; Prize in English. Hasterwell W. Thornton.—(Felsted Grammar School, England.)—Second Rank Honors in Mathematics ; Prize in Botany. James Ross.—(Huntingdon Academy.)—First Rank General Standing ; Prize in Logic ; Prize in German. James Thomas Donald.—(High School, Montreal.) First Rank General Standing. Edmund J. Guerin.—(Montreal College.)— Prize In French.

Passed the Sessional Examinations.—Ross (James), Ross (Donald C.), Donald, Dawson, McFadyen, Blakely, Thornton, Guerin, Torrance (Fred.), McLaren, Sweeny, Lyman (A. Clarence.)

First Year.—William McClure—(Lachute Academy).—First Rank Honors in Mathematics and prize ; First Rank General Standing ; second prize in Classics; prize in French; prize in Chemistry. Richard McConnell.—(Private Tuition).—Second Rank Honors in Mathematics and prize. Robert Eadie.—(Brantford High School, Ont.)—First Rank General Standing ; first prize in Classics ; prize for English essay. William D. Lighthall.—(High School, Montreal —Prize in English. Ernest J. Houghton.—(Diocesan School, Isle of Wight, England.)—Prize for English essay.

Passed the Sessional Examinations.—McClure, Eadie, Lighthall, Cross, Stevens, Morrison, Howard (R. J. B.), McConnell, Redpath, Robertson, Allan, Shearer, Meighen, Rutledge, McKibbin (B), Houghton, Haley.

DEPARTMENT OF PRACTICAL AND APPLIED SCIENCE.

Graduating Class—Willis Chipman.—Certificate of Merit in Engineering ; First Rank Honors in Natural Science.

Middle Year.— William J. Sproule—(Toronto High School.)— Prize in Engineering subjects, prize in Zoology.

Passed the Sessional Examination.—Sproule, Jones, Wardrop, Thompson.

Junior Year.—John Swan, (High School, Montreal)—First Rank Honors in Mathematics and Prize. John S. O'Dwyer (Granby Academy)—Prize in French. Frank Adams (High School, Montreal)— Prize in Chemistry.

Passed the Sessional Examination.—O'Dwyer, Swan, Adams, Sriver.

The Earl of Dufferin's Gold Medal for a Prize Essay has been awarded to Kutusoff N. McFee, B. A.

In the Examinations In September, 1875, the following Scholarships and Exhibitions were awarded :—

Third Year.—Newnsham, Warriner and Lafleur—W. C. MacDonald Scholarships. Second Year—Ross (James), Donald, and Ross (Donald)—W. C. MacDonald Exhibitions ; Thornton—T. M. Taylor Exhibitian. First Year—Fadie and Stevens—W. C. MacDonald Exhibition ; Knowles-Jane Redpath Exhibition ; Lighthall—Governors' Exhibition.

SESSIONAL EXAMINATIONS, 1876.

ORDINARY COURSE IN ARTS.

GREEK.

B. A. Ordinary.—Class I.—Crothers and Pedley (Hugh), equal ;— Watson. Class II.—Cox. Class III.—Gray and Matheson, equal.

Third Year.—Class I.—Lafleur, (First Prize) :—Gould, (Second Prize) :—Warriner :—Newnham and Scott, equal. Class II.— Anderson, Amaron, Robertson. Class III.—McGibbon, McGregor, Forneret.

Second Year.—Class I.—Ross (Donald), Ross (James), Donald, Blakely. Class II.—McFadyen ;—Lyman (A. C.) and Thornton, equal ;—Dawson and Taylor, equal ;—Torrance. Class III.—McKillop and Sweeny, equal ;—McLaren, Guerin.

First Year.—Class I.—Eadie, (First Prize) ;—McClure, (Second Prize) ;—Cross. Class II.—Lighthall and Stevens, equal ;—Morrison ; —Howard and Lane, equal—McConnell and Robertson, equal ;—McLean, Shearer, Wood. Class III.—Meighen ;—Allan and Redpath, equal ;—Haley, Rutledge ;—Houghton and McKibbin, equal.

LATIN.

B. A. Ordinary.—Class I.—Pedley (Hugh), Crothers. Class II.—Watson, Cox. Class III.—Duffy, Grey, Matheson.

Third Year.—Class I.—Lalleur, Gould, Newnham ;—Scott and Warriner, equal. Class II.—Anderson, McGibbon, McGrego. Class III.—Robertson and Amaron, equal ;—Forneret.

Second Year.—Class I.—Ross (Donald), Ross (James), Donald, Blakely. Class II.—Dawson and McFayden, equal ; Guerin and Thornton, equal ;—Lyman (A. C.), McLaren. Class III.—Taylor, Torrance, Ewing, Sweeny.

First Year.—Class I.—Eadie, la McClure, Stevens, Lighthall, Howard. Class II—Morrison, Cross, McLean ; Lane and McConnell, equal , Robertson, Wood, Redpath. Class III.—Haley ; Allen and Meighen, equal.

HISTORY.

First Year.—Class I.—Eadie and Lighthall, equal ; McClure, Morrison ; Cross and Howard, equal. Class II.—McConnell and Lane and Stevens and McKibbin, equal ; Shearer, Wood ; Redpath and Rutledge. equal. Class III.—Haley and Robertson, equal ; Allen and Houghton and McLean, equal.

LOGIC, AND MENTAL AND MORAL PHILOSOPHY.

Fourth Year—(Mental and Moral Philosophy)—Class I.—Pedley (Hugh) ; McGoun and Rexford, equal. Class II.—Duffy, Watson. Class III.—Kettlewell ; Cox and Matheson, equal ; Grey.

Occasional Students in Fourth Year—(Mental Philosophy alone). —Class I.—None Class II.—None. Class III —Hughes, Langford and McKillop, equal.

Third Year—(Moral Philosophy).—Class I.—Lalleur (prize) ; Warriner. Class II.—Gould ; Amaron and Scott, equal ; Newnham, McGregor, Meyers, Robertson. Class III.—Barltrop, Langford, Forneret, McGibbon, Anderson, Atwater.

Second Year.—(Logic) Class I.—Ross (James), (prize) ; Dawson, Blakely, Donald, Thornton, Ross (D. C). Class II.—Guerin, McFadyen ; Ewing and McKillop, equal ; Kettlewell, Torrance, McLaren. Class III.—Lyman (E. C.) ; Langford and Wright, equal ; Evans, Taylor, Sweeny.

ENGLISH LITERATURE.

B. A. Ordinary.—Class I.—Duffy, Graham, Watson.

Third Year.—)Rhetoric).—Class I.—Lalleur and Gould, equal ;—Amaron, Scott. Class II.—McGibbon and Atwater, equal :—Robertson. Class III.—Chubb.

Second Year.—Class I.—Ross, (D. C) Prize ;—Ross (James) and Donald, equal ;—Dawson and McFadyen, equal. Class II—Ewing, Thornton, McLaren, McKillop, Blakely. Class III.—Guerin, Lyman (E. C.), Torrance, Sweeny.

First Year.—Class I.—Lighthall (prize) ;—McClure ;—Eadie (prize essay) ; Cross ;—Morrison and Stevens, equal. Class II.—Houghton, (prize essay) ;—Rutledge and McKibbin, equal ;—McLean ;—Allen and Howard, equal ;—Lane and Redpath, equal ;—Robertson, Shearer, Class III.—Wood, McConnell, Haley ;—Cochrane and Meighen, equal ;—Campbell, Wright.

ENGLISH AND HISTORY.

B. A. Ordinary.—Class I.—Watson, Duffy, Graham.

FRENCH.

Third Year.—Class I.—None. Class II.—Chubb, Robertson. Class III.—None.

Second Year.—Class I.—Guerin (prize) ; Ross (James), Ross (D. C.) Donald. Class II.—Dawson, Blakely. Class III.—McLaren, Sweeny, McKillop, Taylor, Thornton, Torrance.

First Year.—Class I.—McClure (prize) : Cross, Lighthall. Class II.—Eadie, Lane, Redpath, McConnell, Allen, Wood, Meyers, Cochrone. Class III.—Howard, Robertson, Morrison, Stevens ;—Campbell and Meighen, Equal ; Haley.

GERMAN.

Third Year.—Class I.—Gould (prize).

Second Year.—Classe I.—Ross (James, prize).

First Year.—Class I.—Cross, Lane. Class II —None. Class III.—Lighthall.

HEBREW.

Stewart Prizeman.—W. H. Warriner.

Junior Class.—Class I.—Ewing (prize) ; Ruteledge. Class II.—Shearer and Hhoughton equal ;—McLean. Class III.—McKibbin.

Senior Class.—Class I.—Mcgregor. Class II.—McFayden. Class III. None.

MATHEMATICAL PHYSICS.

B. A. Ordinary.—Class I.—None. Class II.—Watson, Pedley (H). Class III.—Matheson, Granham, Duffy, McGoun, Cox.

Third Year.—Class I.—Scott and Warriner, equal ; Lalleur. Class II.—None. Class III.—McGregor (A. F.) and Newnham, equal ;—Robertson (R.) Gould, Forneret, Amaron, Chubb, Atwater, McGibbon.

MATHEMATICS.

Second Year.—Class I.—Ross (James), Ross (Donald C.) Class II.—Donald, Dawson (R.), Thornton, McKillop, Lyman (C) Sweeny, McLaren, Ewing, Guerin, Taylor (E. T.).

First Year.—Class I.—Stevens McClure, Shearer, Eadie, Howard (R. J. B.). Class II.—McConnell, Morrisson, Lighthall, Cross. Class III.—Meighen, Cachrane, Redpath, Robertson (H.), Allen (F.), Haley, Rutledge, Houghton, McKibbin, Culp.

Honour Course.—Second Year.—Second Rank Honours—Ross (Donald C.), (Prize) ; Thornton.

First Year.—First Rank Honours.—McClure, (Prize).

Second Rank Honours.—McConnell, (Prize)

EXPERIMENTAL PHYSICS.

B. A. Ordinary.—Class II.—Lyman, Rexford. Class III.—Watson.

Third Year.—Class I.—None. Class II.—Gould, Lafleur, Chubb, Robertson (R). Class III.—Amaron, Forneret, Scott, Atwater, McGibbon.

NATURAL SCIENCE.

B. A. Ordinary.—(Geology)—Clas I.—Lyman, Pedley, Crothers. Class II.—Watson, Cox. Class III.—Grey, Matheson, Hudhes.

Third Year.—(Zoology)—Class I.—Newnham (prize) ; Foord, Scott Class II.—Atwater, Warriner, Amaron, Anderson. Class III.—McGregor, Forneret, Chubb, Livingstone.

Third Year Honors.—Scott (M. H.), First Rank Honers and Logan Prize.

Second Year.—(Botany)—Class I.—Thornton (prize) : Dawson, Ross (J.) ; Donald and Ross, (D. C.) ; equal ; McFadyen, Guerin, Lyman, Torrance. Class II.—Ewing Barltrop, McKillop, Kettlewell, Blakely. Class III.—McLaren, Sweeney, Taylor.

First Year.—(Chemistry)—Class I.—McClure (prize) ; Eadie. Class II.—Lighthall, Cross, McConnell. Class III.—Morrison, Cochrane, Redpath, Howard, Rutledge, Shearer, Allen, Meighen, Houghton, Stevens, McKibbin, Robertson, Guerin, Wood.

DEPARTMENT OF PRACTICAL AND APPLIED SCIENCE.

SURVEYING AND LEVELLING.

Middle Year.—Class I.—Sproule. Class II.—Walbank, Wardrop, Thompson. Class III.—Rogers, Jones.

First Year.—Class I.—O'Dwyer. Class II.—Swan, Morfill, Scriver ; Adams and Ferguson, equal ; Hull. Class III.—(None.)

DRAWING.

Senior year —Class I.—Chipman. Class II.—(None.) Class III.—Hetheringtan, Hawley.

Middle Year.—Class I.—Sproule, Ross. Class II.—Wardrop, Jones, Thompson, Rogers, Howard. Class II. (None.)

Junior Year.—Class I.—(None.) Class II.—Swan ; O'Dwer and Ferguson, equal ; Adams and Morkill, equal ; Hull and Smith. equal. Class III.—Scriver.

CONSTRUCTION.

Senior Year.—Class I.—Chipman. Class II.—Hetherington, Hawley. Class III.—(None.)

Middle Year.—Class I.—Sproule and Wardrop, equal. Class II.—McNie and Rogers, equal ; Thompson, Walbank, Jones. Class III. Ross, Howard.

APPLIED MECHANICS.

Senior Year.—Class I —Chipman. Class II.—(None.) Class III.—Hawley, Hetherington.

PRINCIPLES OF MECHANICS.

Senior Year.—Class I.—Chipman. Class II.—Hawley. Class III.—Hetherigton.

DESIGNING AND ESTIMATES.

Senior Year.—Class I.—Chipman, Hetherington. Class II.—Hawley. Class III.—(None.)

MENSURATION.

Middle Year.—Class I —Sproule. Class II.—Jones ; Walbank and Howard equal. Class III.—Rogers, Wardrop, Thompson. Ross.

AGGREGATE CLASS LIST.

Professional Subjects.

Senior Year.—Class I.—Entitled to special certificate.)—Chipman. Class II.—Hethrington, Hawley.

Middle Year.—Class I.—Sproule, prize. Class II.—Wardrop, Rogers, Jones, Thompson.
Junior Year.—Class I.—None. Class II—O'Dwyer, Swan. Class III—Ferguson, Adams, Morkill, Scriver and Hull, equal.

MATHEMATICAL PHYSICS.

Senior Year.—Class I.—Chipman. Class II.—None. Class III.—Hawley. Hethrington.
Middle Year.—Class I.—Sproule. Class II.—Jones. Class III.—Thompson, Wardrop, Rogers, Walbank.

MATHEMATICS.

Middle Year.—Class I. — Sproule, Wardrop. Class II.—None. Class III.—Jones, Ross (P.D.), Thompson.
Junior Year.—Class I.—Swan, O'Dwyer. Class II.—None. Class III.—Scriver. Adams.
Honor Course.—First Rank Honors, Swan, Prize.

EXPERIMENTAL PHYSICS.

Senior Year.—Class I.—Chipman. Class II.—Hethrington, Hawley.
Middle Year.—Class I.—Sproule. Class II.—Thompson and Walbank, equal. Class III.—Jones, Ross P.D.), Rogers.

GEOLOGY.

Senior Year.—Class I.— Chipman. Class II.—Hayley, McNie, Hetherington. Class III.—Howard.

ZOOLOGY.

Middle Year.—Class I.—Sproule (prize), Thompron, Ross (P. D.), Class II.—Walbank, Wardrop, Jones. Class III.—McNie. Rogers, Howard.

BOTANY.

Junior Year.—Class I.—None. Class II.—Adams. Class III.—None.

CHEMISTRY.

Junior Year. — Class I.—Adams (prize). Class II.—O'Dwyer. Class III.—Jones, Ross (Philip), Swan, Wardrop, Scriver, Thompson, Walbank.

MINING COURSE.—ASSAYING AND BLOWPIPE ANALYSIS.

Middle Year.—Class I.—None. Class II.—None. Class III.—McNie, Howard.

ENGLISH LANGUAGE AND LITERATURE.

Class II —O'Dwyer, Scriver, Swan. Class III.—Adams.

FRENCH.

Senior Year.—Class I.—None. Class II —None. Class III.—Chipman, Hawley.
Middle Year.—Class I.—None. Class II.—Sproule. Class III.—Jones, Walbank, Howard, Wardrop.
Junior Year.—Class I.—O'Dwyer prize). Class II.—Swan. Class III.—Adams and Smith, equal; Scriver.

GERMAN.

Senior Year.—Class I.—None. Class II.—None. Class III.—Hetherington.

PASSED FOR METEOROLOGICAL CERTIFICATES.

Class I. — Chipman, Lyman (H. H.). Class II.—Hetherington, Hawley. Class III.—Watson, Graham.

The degrees having been conferred if the usual manner, the valedictory was read by Mr. Hugh Pedly, who referred forcibly to the necessity for educated men in every department of education. He contended that there was room for all educated men, that while there were inefficient doctors, bad lawyers, business men who sacrificed principle for interest, and clergymen who did not do all their duty in Canada, there was room for educated men. He challenged any man to say his statements were unfounded, and contended that the coming educated men should push out the uneducated men from these professions. He alluded to Cornelia, who when her countrymen were vieing with each other in showing gems and precious stones begged to be allowed to show her pearls, and astonished the country by exhibiting the sons upon upon whom she had lavished so much care in educating, and trusted that like her, this Canada of Ours would be able to exhibit to the matrons of the earth sons equally worthy of the admiration of the world. In closing he drew the attention of his fellow students to the responsability which they incurred in going through a college course, deplored the practice of going through merely because they were sent, praised the Professors for their efforts, recommended to his fellow-students patience and perseverance, alluded to the sadness that clothed the parting hour, finishing his very good address by an exhortation to each student to be worthy of the Alma Mater and each other.

The Rev. Dr. Cornish, on behalf of the Faculty, delivered the address to the graduates, conveying some excellent suggestions to the young gentlemen about entering upon the world, and advised them to be true to themselves, their college, country and Creator.

The conferring of degrees upon Bachelors of Applied Science was then proceeded with, the Principal performing the ceremony, and Mr. Frederick Hetherington, on behalf of his fellow graduates, reading the valedictory. He spoke in high terms of the necessity for a greater degree of attention in the direction of Applied Science, reviewed the past history of the department, commented favorably upon the increase in the number of graduates, and in warm terms thanked the Principal and professors for the interest they had displayed in the class.

Dr. Johnson, on behalf of the Faculty, addressed the students, and placed before the audience the position in which students in the Department of Applied Science were placed; he defended Professor Tyndall from the charge of atheism brought against him, and contended that there was in applied Science as treated by such men as Darwin, Huxley and others, nothing impossible of reconciliation with the doctrine of Christianity. Science was not dangerous to religion, and its very importance in this respect was the strongest argument to be used in favor of its study by a greater number of theologians and others.

The Rev. Mr. J. F. Stevenson, having signed the necessary document, was admitted to the degree of B.A., and took his seat on the platform amid applause.

Mr. Kutusoff McFee, the successful candidate for the Earl of Dufferin's medal, was then introduced to the Vice-Chancellor, who presented the medal, accompanying the action with a few words of congratulation.

The customary statement of progress was then made by Principal Dawson.

The Principal said:

Mr. Chancellor, in the session of the University which closes to day, our number of students has been larger than in any previous year. It has reached to 352, in our three faculties of Law, Medicine and Arts, without reckoning the students in affiliated colleges and schools. If we include those in Morin College and in the McGill Normal School, the total reaches 492. Of this number 320 are persons not resident in Montreal, but attracted thither from all parts of the Dominion and from beyond its limits by the educational advantages which we offer. Our number of graduates in the present session has been 60 in all, not a large number in comparison with that of the students; but likely to be increased in future years, as the men of the present junior years come forward to be candidates for degrees. The Board of Governors have in the present year published a statement of our revenue and expenditure. This does not come within my department; but it suggests inevitably certain comparisons with educational results, and perhaps should make us apologize to our friends for attempting to do so much with so small means When we compare our modest income of less than $40,000 with the wealth of other Universities, we have reason to feel ashamed of our poverty, but not of our work in comparison with our ressources. A University which styles itself the youngest in America—that founded by John S. Hopkins of Baltimore, begins its operation this year with a revenue of $200,000, and hopes for additions to this. Harvard, the oldest American University, enjoys an annual income of about $380,000; but even those sums are small compared with the wealth of the old English Universities. In recent discussions in the House of Lords the available revenue of Oxford was stated at £200.000 sterling, so that each student may be held to cost the University annually $1,000, independently of fees and personal expenses. We do not think that any one can fairly charge us with giving our students too little to learn or a too limited range of study, but if any are disposed to do so, they may remember that our whole income gives us less than $100 per student. It will therefore readily be understood that we can have no serious objection to receive further benefactions and endowments; and I may add that, in our present stage of progress, the effect of these, for a long time to come, may lead to such extension of our staff, appliances and number of students that they may fail greatly to increase our wealth relatively to our work. The progress which, with our limited resources, we have been able to make in the development of our educational machinery in the past year has not been so great as I could wish; still, it has embraced some important changes. Improvement has been effected in the organization of the Faculties of Law and Arts by the appointment of Prof. Kerr as Acting Dean in the one, and of Professor Johnson as

Vice-Dean in the other, and new and eminent names have been added to the staff of medical professors, though we have to regret that Dr. Câmpbell has been obliged by the state of his health to be absent for a time from his post as Dean of the Faculty. Our Library, which now numbers about 12,000 volumes, has been rendered more accessible by the printing of a catalogue, in the preparation of which the Librarian has been aided by Drs. Cornish and Murray. Our examinations for schools have been re opened with some success and a prospect of permanent usefulness. (Applause.) We are looking forward to further improvements in the coming year. Additional provision will be made for the comfort and convenience of students in the college buildings. Important additions will be made to the teaching power of the Department of Practical and Applied Science by the appointment of another lecturer in aid more especially of the mathematical training of the students of that department, and by adding to the function of the present assistant to the Professor of Engineering that of Lecturer in Geometrical Drawing. We shall arrange in connection with these changes for courses fitting our Engineering graduates for the higher examinations now required for Dominion Land Surveyors, as well as for the ordinary work of the profession. A liberal gift from a lady of this city will add a collection o models in mining and metallurgy to our apparatus. Some of our graduates are beginning to perceive the advantages which would result from studying as post-graduate students some of the various subjects to which their attention could not be directed as undergraduates, and facilities will be given for this purpose. Dr. Carpenter, as lecturer in Malacology, will favor our students in Natural Science with a few museum lectures on the Mollusca. The institution of summer courses on a more extended scale than heretofore in the Faculty of Medicine is a new feature, and some of the subjects, as Practical Chemistry and Histology, are deserving of the attention of other than professional students. At our meeting in May last we had to deplore the loss of a member of our Board of Governors and an eminent benefactor of the University, Mr. William Molson. Death has since deprived us of another member of the Board, Mr. David Torrance, a man whose sound judgment and business capacity and earnest desire to husband the resources of the University, rendered him of the utmost value in all financial matters. (applause.) We have also lost a benefactor and a member of the corporation in Sir William Logan. Sir William was always a friend of the University and zealous sympathiser with our work, and especially with that part of it which related to Natural Science. He was the founder of the Logan Medal in Natural Science, and of the Logan Chair of Geology. In these foundations he has established a permanent means of aiding young men to attain to the knowledge and practice of the science to which he was himself devoted, and already men trained in our School of Geology are occupying important positions in connection with the Geological Survey and in educational institutions, and are doing original work in the promotion of science. (Applause.) Added to the other means of culture which this University possesses, such donations are sure to be fruitful of good. This is a truth which holds good of educational benefactions of other kinds as well. Any sum of money devoted to the promotion of culture in science, philosophy or literature is sure to be abundantly productive of good when grafted into an established and living institution, while if planted alone it may long remain comparatively unfruitful or it may wither and die. In our own case, we may safely affirm that the arrangements of this University are of such a character as to admit of healthy extension in all the directions demanded by the requirements of modern society; and our growth in those directions is limited only by the extent of our available resources. Finally, Mr. Chancellor, knowing that you are about to leave us for a time, permit me in behalf of all the members of the University, in common, I am sure, with all the friends of higher education in this Province, to express to you our sincere good wishes for your health and happiness and safe return (Applause.)

The Hon. Judge Day, in rising, dit not propose to make any extended remarks, and would content himself with returning thanks to the Principal for the complimentary remarks he had used in reference to his (the Chancellor's) retirement. But he could not in looking back upon the career of the College, its success and the prominent part it had taken among the educational institutions of the continent, allow it to be said that the success achieved was due to his exertions in its behalf. He would not trust himself to go into the history of the prosperity of the College at any length, but he would say—and he spoke it with the greatest sincerity—that the man above all others to whom the credit of building up McGill College to its present position was Principal Dawson—he it was to whom all the credit really belonged. (Loud applause.) In concluding, he hoped the young gentlemen who from time to time graduated, would appreciate this fact also. To them he would say belonged the future progress and welfare of the University, and he trusted they would prove equal to the occasion. (Applause.) In conclusion, he wished all the students and graduates a happy and prosperous career, and declared the convocation closed.

His Lordship the Metropolitan pronounced the Benediction. and the meeting of the convocation was over.—(*Montreal Gazette*.

University Intelligence

The Corporation of McGill University have pleasure in acknowledging the following donations to the Faculty of Arts during the quarter ending April 26th, 1876.

TO THE LIBRARY :

From the Cobden Club, London, England.—Free Trade and the European Treaties of Commerce. Pam., 8vo.

From the same.—Well's Creed of Free Trade. Pam., 8vo.

From S. F. Dawson, Esq —Indian Bibliography, 8vo.

From the Royal Society of London.—Philosophical Transactions. Parts 1 and 2 of Vol. 161, and Part 1 of Vol. 165. 3 vols, 4to, pap.

From the same.—Proceedings, Nos. 151-163. 13 pam., 8vo.

From the same.—List of Fellows of the Royal Society, 30th November, 1874. Bam., 4to.

From the same.—Klein's Anatomy of the Lymphatic System, 11, 8vo.

From the Government of the Province of Quebec.—Statement of the Public Accounts of the Province of Quebec for the Fiscal Year ended 30th June, 1874. 8vo.

From the same.—Financial Statement of the Minister of Public Instruction for the Fiscal Year ended 30th June, 1885. Pam., 8vo.

From the University of Toronto —Examination papers for 1875, 8vo.

From the American Philosophical Society.—Proceedings No. 95 to vol. 14th pam., 8vo.

From Dr. F. V. Hayden.—Report of the U. S. Geological Survey of the Territories, vol. 11., 4to.

From Principal Dawson, LL.D.—Revision of the Echini, by A. Agassiz, with plates, 2 vols., 4to.

From Mrs. G. H. Frothingham.—Picturesque America, or the Land we Live in, 48 parts, 8vo.

From the Superintendent of the U. S. Coast Survey.—Report os the U. S. Coast Survey for 1872, 4to.

From Harvard College, Cambridge, Mass.—Annual Report of the Trustees of the Museum of Comparative Zoology for 1875, pam. 8vo.

From Dr. J. Perrigo.—Mulcahy's Principles of Modern Geometry, 8vo.

From the Government of Washington —Bulletin of the U. S. Geological and Geographical Survey of the Territories, Nos. 1 and 3 to vol. II., 2 pam., 8vo.

From the University of Oxford.—Catalogue of books added to the Radcliffe Library, Oxford University Museum during 1875, pam. 4to.

From J. S. Newberry, Esq.—Report of the Geological Survey of Ohio. Parts 1 and 2 of vol. 11., 1874-75, 2 vols., with maps.

From the Board of Public School Commissioners, Baltimore, U. S.—Forty-seventh Annual Report for 1875, pam.. 8vo.

From the Government of the Province of Quebec.—Statuts de Québec, 1875, 8vo.

From Prof. C. Roux.—Annual Reports (1875 and 1876) of the Evangelical Society of La Grande Ligne, P. Q., 2 pam., 8vo.

From the McGill College Book Club —152 vols., comprising works in general literature, science, &c., &c.

TO THE MUSEUM.

From W. Robb, Esq., Montreal, Dendritic Crystallisation from Berthier (en haut.)

From Dr. Grant, Ottawa, specimen of Apatite and Ear-bone of Whale.

From J. T. Pennock, Esq., Ottawa, Specimens of Plumbago from Buckingham.

From Rev. A. Duff, M. A., Montreal, Specimens of Fossils from the Muschelkalk of Germany.

From D. Boyle, Esq., Elora, Ont., Specimens of Stromatopora, &c, from the Guelph Formation.

OFFICIAL NOTICES.



Ministry of Public Instruction.

SCHOOL COMMISSIONERS.

The Lieutenant-Governor has been pleased, by order in council, dated the 21st of April last, to make the following appointments, namely:

County of Pontiac, Onslow South.—Messrs Daniel Milks, James Mohr, John Hammond, William Thompson and Charles Cane. Municipality newly established.

County of Pontiac, Onslow-North.—Messrs. Daniel Beehan, Nicholson Morissey and George Turner, *vice* Messrs. Manus Regan, A. Bolger and Hugh McCaughon, who have ceased to reside within the said municipality.

County of Beauharnois, Saint Timothée—Mr. Narcisse Papineau, *vice* the late Revd. Jos. Olivier Archambault. There was no election held within the time prescribed by law.

By order in council dated the 26th April.

County of Ottawa, Bouchette.—Messrs. Daniel Johnson, Théophile Malbœuf, François Carré, André Beauregard and Felix Courchaine.

County of Montmorency, "Les Crans," (new municipality.)—Messrs. Jean Paré, Paul Paré, Olivier Gravel, Onésime Giguère and Clément Goulet.

County of Nicolet, Sainte Eulalie.—MM. Jos. Hébert and Ludger Turcotte, *vice* Messrs. Honoré Désilets and Louis Desfosses, gone out of office and not replaced by election.

SCHOOL TRUSTEES.

County of Ottawa, Wakefield.—Revd. John Leaman, Revd. G. G. Huxtable and John Shouldice, esquire.

BOARDS OF EXAMINERS.

DISTRICT OF BEAUCE, (CATHOLICS.)

Tancrede Fortier, esquire, M. D., *vice* Mr. J. Bonneville, deceased.

QUEBEC CITY, (PROTESTANTS.)

Revd. Mr. William Wright, Revd. Mr. Christopher Rawson, Revd. Mathew, M. Fothergill, William Darling Campbell, esquire, and W. H. Carter, esquire, *vice* the Revd. Dr. Cook, Commander Edward Ashe, R. N., Revd. Henry Roe, Revd. Henry Purvis, and James Anderson, esquire, M. D., resigned.

ERECTION OF MUNICIPALITIES.

County of Pontiac, Onslow North.—Comprising the seventh, eighth, ninth, tenth, eleventh twelfth, and thirteenth ranges of township Onslow, and the first, second, third and fourth of Alfield.

County of Pontiac, Onslow South.—Comprising the first six ranges of Onslow, saving in both cases, the portions of said township Onslow which are already erected into a school municipality under the name of the village of Quyon and Pontiac.

FIXING LIMITS OF MUNICIPALITIES.

To assign to the school municipalities of Stukely South and Roxton, in the county of Shefford, the following limits, to wit: Stukely South shall comprise the first, second and third ranges, and that part of the fourth range which stretches from lot number fifteen to lot number twenty eight, inclusively, of township Stukeley so as to remove all doubts as to the legality of the erection of the said municipality.

Roxton.—To this municipality shall be annexed lots twenty four, twenty five, twenty six, twenty seven and twenty eight of the tenth and eleventh ranges of township Ely, whereof they already form part for religious purposes.

MISCELLANY.

The Founder of Eton College.—The Foundation of Eton College presents to us a touching historical picture, one of those which affect both the imagination and the heart. The bold and energetic Plantagenet kings were all more or less notable persons in their own right, likely to make a commotion in the world even had they not been royal, and doing so royally with all the added force of their kingship. The change which occurs in history when, after all these stirring personages, a timid, gentle figure, sadly out of place in the imperial mantle, comes stealing on the stage with downcast eyes and feeble step, is curiously pathetic. More entirely out of place than the sixth Henry was, it is impossible to conceive of any man being. "He was more fitted for a cowl than a crown," says the old chronicler; but he would have stood as poor a chance with the ambitious and enterprising churchmen of the time as with its princes. He was a retiring, gentle, student, a weakly, ailing, man, with the shadow of mildness hanging over him, and all the shrinkings of a timid nature to hold him back, and he fell upon an exceptionally difficult time, with long arrears of unsettled questions before him to be brought to a conclusion somehow—the matter of France, for instance, which his bold father had opened so brilliantly, and that matter of the succession which his sage and ambitious grand-father had vaulted over to gain the crown. How often does a strong man begin a course which he has to leave a feeble one to continue and fail in? The father who sets the mischief going, dies peaceably without being incommoded by it, and leaves it to fall upon the head of his innocent son. So it was with the weak young King left to undertake enterprises and to answer for wrongs which were none of his doing. But before he sank under the fatal burdens left to him he managed to get one piece of congenial work executed under his very eyes. He founded Eton, appropriating to it the little waterside village which he must have watched in the sunshine since he was old enough to know anything. Windsor was the centre of his youthful life and studies, and with a natural instinct he chose a place close at hand, where he could watch over every new course of stone and bit of carving that was put up, and every detail of order and discipline. There are plans still existing marked as being "the Kyng's own voyse" in respect to the erection of the college buildings; and he never gave over planning for it. In all his troubled and sorrowful reign it is the only thing apparent in which, on his own account, and as an individual man, Henry took pleasure, and this fact gives to the pious founder a pathetic interest. Had it only been given to him to be a peaceable schoolmaster, teaching "the art of grammar" to his poor scholars, or even the usher who assisted the master, how much happier might he have been! Instead of being dragged about by all those unruly nobles and by that headstrong heroine Margaret, how much pleasanter to have nestled in the new walls, with a chamber to himself, as was the privilege of the master? But Henry VI had to do as his birth compelled him, and could not take refuge in his school any more than Louis XVI, could in lock-making. Poor King! alas, he had to give up that, and toil horribly without any hope, at alien matters, and finish up the work of father and grandfather, which he tried to do trembling, with tools that were too big for him, paying for his feebleness and his failures the poor forfeit of his life; but founding Eton all the same, which was something—snatching a precarious pleasure out of his kingship so long as there remained to him any real power.—*Blackwood's Magazine.*

Tomb of the Æneid.—An interesting archæological discovery was made some time ago near the Porta Maggiore, Rome. It is the allegorical story of Rome painted in fresco around the inner walls of one of those tombs in which the ancients were accustomed to place the ashes of their dead. It has excited the utmost interest among the archæologists and artists of the city, who say that it is not only unique for its historical importance, but for the elegance and skill exhibited in the execution of the paintings. The two brothers Visconti, of the City Archæological Commission, are studying the subject in order to write an article upon it for the *Bulletin*, which is published every three months.

Several are copying the paintings, some of which are still perfect, although the story is partly lost from the fading of a

portion of it through the falling of bits of plaster. Mildew is the great enemy of these frescoes, and it is not probable that they will long be left where they are. The private company to which the land belongs, and which is making the excavations, will try to sell them to the city or government but in case a sufficient price is refused it will form a museum of its own with these paintings and a number of inscriptions, tablets, sarcophaghi, vases of glass and terra cotta, gems and bronzes which have been found upon this spot.

THE PLACE WHERE THE FRESCOES WERE FOUND.

When the company began to excavate near the Porta Maggiore, which, with its arches and piers over which the Claudian Aqueduct was carried, was one of the finest monuments of Rome, it discovered that the ground was the site of an ancient Roman cemetery. The graves exhibit both methods of interment—burial and burning; but this tomb is a colombario, like those on the Appian Way and in the Villa Pamfili, and the ashes of the dead are arranged in terra-cotta vases with lids on shelves around the walls. These remarkable Frescoes, which have been restored to the light after being so many centuries covered by the earth (which in Rome continually accumulates, and has buried the old city thirty feet beneath the new), are about thirty feet from the original level of the floor of the tomb. It has been always thought that the Romans left no historical painting of the earliest settlement of the Latin territory and the foundation of a city there by Æneas. Virgil's Æneid, which may be called the national poem of the Latin race, as the Illiad is of the Greek, is the principal authority for the history of the Trojan hero who after the destruction of Troy by the Greeks, first founded a city in Thrace, then went to Sicily and then to Libya, where he met Dido. He then, returning to Sicily, founded another city there and finally came to the shores of the Tiber. He sent ambassadors to the King Latinus, who not only permitted him to found a city, but promised him his only daughter Lavinia in marriage. Æneas named his city Lavinium, in her honor, and the territory on the banks of the Tiber Latium, after the father of his wife. The Rutuli, a people in the vicinity, regarded the coming of Æneas with displeasure and made war upon him. According to mythology he was translated the night after a battle, and peace was concluded with the Rutili. His son founded the city of Alba Longa, and Romulus and Remus, who were his descendants, founded the city of Rome.

THE STORY OF THE PICTURES.

The exquisite paintings, which are not more than eight or ten inches high and executed with wonderful delicacy of coloring and knowledge of anatomy, represent the coming of Æneas into Latin territory, his wars and the peace made with the Rutuli, the construction of the city of Lavinum, the abandonment of Romulus and Remus in the Tiber, and their youth. One of these figures is especially beautiful. It represents Romulus in a pastoral dress during that period of his youth when he was thought to be the son of a shepherd. The broad-brimmed hat he wears shades a youthful face that is expressive of innocence and health His short dress and crook, as well as the two sheep at his side, indicate pastoral occupation. Other pictures represent workmen with great blocks of stone upon their shoulders, who are building the walls of a city. Another shows Lavinia, a most beautiful and graceful female figure, seated near the walls of the city named after her.

Twelve tombs, similar to this, have been excavated, in which were found a great variety of articles, chiefly women's ornaments, lamps and vases The next one to that containing the paintings is without a roof and very much injured, but it has a curious marble table with an aperture about as large as a man's arm, though which the libations of oil and wine were poured. These excavations were very courteously explained and shown to us by Engineer Panini, who is directing them.

—*N. Y. Evening Post*

The Mikado of Japan.—The term *mikado*, used to designate the Emperor of Japan, is of doubtful etymology. The word does not occur in the most ancient Japanese books, but is the one, out of many names given to the emperor, which has obtained the greatest currency. The derivation of mikado usually accepted by the Japanese is from *mi*, honorable, august, and *kado*, a gate, equivalent to the Turkish title of Sublime Porte. Tenno is the official designation now used for the emperor, and all Japanese ministers and consuls are accredited as representatives of "his imperial majesty the Tenno of Japan." The first mikado, Jimmu Tenno, who is usually regarded as an historical character, began to reign about 660 B. C., since which time one hundred and thirty-one emperors have occupied the throne. The reigning mikado (1875), is Mutsuhito, second son of the Emperor Komei Tenno and the Empress Fujiwara Asako. He was born in 1850, succeeded to his father February 3, 1868, and married Haruko, daughter of Ichijo Tadaka, a noble of the second degree of the first rank, born in June, 1850. Abandoning the habits of seclusion practised by his ancestors, the mikado appears in public, and gives audience to the members of the diplomatic corps in Japan, to his own officers, and to the foreigners employed in the government service. He dresses, eats, rides and acts like a European sovereign.

—*Appleton's Cyclopedia.*

Schoolmasters.—The life of a schoolmaster has many drawbacks. It is tedious, laborious, trying to the temper; and its routine may well produce, especially in the beginning, a certain state of stupefaction in the mind of the unfortunate whose life is spent in correcting the mistakes of small boys, and cutting channels of communication between them and the world of truth, wisdom, and genius, which is so hopelessly far apart from their opaque intelligence; but yet it is a worthy life, full of high objects of ambition, and more satisfactory possibilities of action and influence than most occupations hold out. Even in its smallest beginnings the conscientious worker may have the satisfaction of feeling that it is not mere daily bread he is earning, but that the material he works on is the highest and most important, and that more or less he is shaping the mind of the next generation while he toils through even his least attractive work. A great many of us have to work without this stimulant and support, to satisfy ourselves with simple exercise of honesty, turning out the skilfullest manufacture we can for life's most ordinary uses, as the sole equivalent which it is in us to give for all the comforts and loveliness with which we are enabled to sweeten our existence; but the schoolmaster may always have the consoling consciousness of worthy work to keep up his heart and courage. And his reward for his work is not of this etherial kind alone. He has few or no great prizes to reckon upon, but he has the chance at an early age of a good income, securing for him those easy conditions of life in which the essence of personal well-being lies. At five or six and twenty a young man of good ability and reputation at Eton, holding the position of a classical master and tutor, without a house, may find himself in receipt of an income of a thousand a year—a little less or a little more but rather more than less—thus beginning life in circumstances of comfort which many of his contemporaries only attain after the labours of years. He can marry, which so few men of that age, dependant on their own exertions, can hope to do; or he can surround himself with such æsthetic luxuries as suit the taste of his generation; or he can travel, and make himself familiar with everything throughout the Old World which it is most interesting to know; for this desirable life is made more desirable by the bright intervals of holidays which intersect it, nearly four months of the year being absolutely free of duty and responsibility, to be used as he pleases, for pleasure or for profit. Nothing could be more enviable or more perfect than these foundations of his life; but the youthful chapter is perhaps the brightest; there is no advance before him commensurate with the triumphant beginning. When he gets a little older, and succeeds to a boarding-house, greater facilities for money-making are indeed in his power; and in other times at least, modest but comfortable fortunes have accumulated in this way. But, to get his fair chance, he must have capital to invest in the house besides the capital of his education and elaborate training which he invests to start with. The house and furniture of one of the large houses which "pay" represents a considerable amount of money, and brings in a certain mercantile character into the profession; and it is not uncommon to hear the complaint made that almost any other profession would recompense better the junction of skilled labour and real capital, which is necessary in this second stage of the public schoolmaster's career; and he has nothing or next to nothing further to look for.—*Cornhill Magazine.*

Mothers should be educated.—The care of children's health during the school period devolves mainly upon the mother, and it makes an immense difference in the success of the school

whether the children come in the morning bright and fresh from the long night's sleep, the morning bath and the simple breakfast, eaten leisurely and with the enjoyment that secures good digestion; or whether the child is always allowed to sit up late for exciting pleasure, to dress and eat its breakfast in a hurry of fear, lest it should be too late for school, and arrive there with jaded body and mind to undertake tasks which are trifles for its healthier comrades, while he or she breaks down under them, to add another to the long list of invalids accreditable to the public school system. To accomplish even this simple home duty towards the great national work of public education, a woman needs more than mere motherly love and good intention. She needs educated intelligence herself and a careful preparation for her work. She must have an acquaintance with school life, as well as home life, and a knowledge of their mutual relations.

It is often lamented that the female teachers in our public schools change so often because they leave school to be married; but I believe that this is far from being an unmixed evil, but that on the contrary this fresh young element has its value in the schools, if it work under competent direction and supervision, and that whatever evil arises is more than compensated by the knowledge of the schools which is thus gained by the future mothers of the community, who can exercise so powerful an influence upon education. Even the physical inheritance of children is improved by the education of the mother, and her three years of teaching, which is the average of a New England school teacher's experience, and often the most valuable preparatory years of her life. An English writer on statistics shows that 24.87 per cent. of the children of the illiterate mothers die in the first year, while only 14 65 of the children of mothers having some education die during the same period. In considering these numbers we must allow for the fact that the illiterate class includes the pauper class, who actually suffer from physical want, yet still this large difference of ten per cent. is v ry suggestive.

—Professor Ferrier, of King's College, London, who has made the phenomena of sleep a special study, recently said in a lecture thereon that anything which has a tendency to extract blood fron the brain favors sleep. Exercise does this, because the moment the weary muscles are at rest the blood rushes to them to repair their loss, and is absorbed by them. Digestion and hot drinks produce the same result by drawing the blood supply from the brain to the stomack. Conversely, anything that stimulates the brain, such as sights, sounds, thought, or anxiety, will keep a man awake. If we, therefore, wish for a refreshing slumber, we must begin by avoiding care and anxiety, and take sufficient bodily exercise to induce the necessary muscular exhustion. With regard to the length of sleep, Dr. Ferrier holds that the heart is not in a state of constant, but of rhythmical activity, a term of action being followed by a pause of rest, during which the heart is to all intents and purposes asleep. In fact, if the pause of the heart are all summed up, it will be found that it rests or sleep eight hours out of the twenty-four, the sleep being in the proportion of one-third as compared with the hours of action or work. Eight hours are consequently sufficient for the adult.

Blunders in Speech.—It was a Scotch woman who said that a butcher of her town only killed half a beast at a time. It was a Dutchman who said that a pig had no marks on his ears except a short tail. It was a British magistrate who, being told by a vagabond that he was not married, responded, "That's a good thing for your wife." It was an English reporter who stated at a meeting of the Ethnological Society, there were casts of the skull of an individual at different periods of adult life, to show the changes produced in ten years,' though Dean Swift certainly mentions two skulls preserved in Ireland, one of a person when he was angry and the other of the same when he grew to be a man. It was a Portuguese mayor who enumerated among the marks by which the body of a drowned man might be identified when found, "a marked impediment in his speech." It was a Frenchman, the famous Carlino, who, contentedly laying his head upon a large stone jar for a pillow, replied to one who inquired if it was not rather hard, "Not at all for I have stuffed it with hay." It was an American lecturer who solemnly said one evening, "Parents you may have children; or, if not, your daughters may have."

In commenting upon the penetrating power of different colored lanterns, the *Popular Science Monthly* describes experiments recently made at Trieste. Half a dozen lanterns with carefully selected glass, and all furnished with oil and wicks of the same quality, were lighted on the beach, and then observations were made by a party in a boat. At the distance of half a league, the darkblue lantern was invisible, and the deep-blue one nearly so; hence it appears that blue lights are not adapted for use in lighthouses or as signals. Of all the colors the green was visible for the longest distance, with the exception of the red, which ranked next to the white in power of penetration. The conclusion is that only the green and the red are suitable for signals; and the green light the Trieste observers only recommend for use in conjunction with white and red lights, inasmuch as, when viewed from a short distance, an isolated green light begins to look like a white one.

Small conveniences.—It is quite astonishing how much comfort and satisfaction results from little causes. A box, bag, drawer, or basket for needles, thread, scissors, thimble, buttons of all sizes, tape, strings, wax, etc., saves a multitude of steps, and saves time, and a vast amount of patience, for men-folks dislike to wait while such articles are being hunted up. Neatly trimmed lamps are another convenience, though some prefer to trim them just before lighting, as they become dusty before evening This can be obviated by twisting a piece of paper funnel-shaped, so as to cover the chimney and burner, or if durability is preferred, covers made of fancy paper with strips of gilt to cover the seams and edges, are very pretty. The stocking bag or basket, with different coloured balls, and different sizes of needles, can be hung away under garments, and is always ready for use and not in the way. A place sacred to pens, ink, paper, envelopes, and pencils, where one can jot a thought without getting riled in spirit looking for material, thereby becoming debtor to our fellow-man for defrauding him of the useful idea that circumstances evolved for his benefit, comes under this head. Book-shelves are another really sensible article, and if never so cheap are an ornament. Any storekeeper would reserve for you the pieces upon which cloth is wound, for the shelves; a piece of strong twine filled with spools will complete it. Stand the books edgeways, so that the titles can be read without needless handling. Lamp-lighters saving the disagreeable smell of matches; an old basin with a mop or brush for stove-blacking; a can or jug, with scissors, rags and kerosene, for lamp trimming, are convenient, and essential. Save everything. No matter if it be old-fashioned, or you are tired of it. Lay it away, and in a year or two it seems fresh and do a good service in another form, and save a few pennies, which put with other little savings will buy a nice book or pay the subscription for some desirable publication. I do not mean the inconvertible odds and ends that accumulate in a house, and fill it up needlessly, as some are, merely because they posses a passion for saving all things, but only such as taste and judgment can convert into useful and ornamental articles.—*Maine farmer.*

Be Kind to the Aged.—Age, when whitening for the tomb, is a worthy object of reverence. The passions have ceased—hopes of self have ceased The old linger with the young—and, oh, how careful should the young be to reward them with tender affection and with the warmest love, to diminish the chill of ebbing life. The Spartans looked on reverential respect for old age as a beautiful trait of character. Be kind to those who are in the autumn of life, for you know not what sufferings they may have endured, nor how much of it may still be their portion. Do they seem unreasonably to find fault or murmur? Allow not your anger to kindle against them; rebuke them not, for doubtless many have been the crosses and trials of earlier years, and perhaps their dispositions, while in the spring-time of life, were less flexible than your own. Do they require aid? Then render it cheerfully. Forget not that the time may come when you may desire the same assistance from others that you render them. Do all that is needful for the old, and do it with alacrity, and think not hard if much is required at your hands, lest when age sets its seal upon your brow, and fills your limbs with trembling, others may wait unwilling, and feel relieved when the coffin has covered you forever.

Birthdays.—Almost every schoolboy is familiar with the picture of Horace bustling about round his altar of turf with his little censer full of frankincense and his bottle of old wine, keeping high festival and holiday on the fated Calends of March. The exuberant geniality of the little poet led him to celebrate two birthdays every year, taking as an excuse for the second feast his miraculous escape from a falling tree. A more

touching scene is that of Ovid in exile, struggling to do the orthodox honours of the birthday of his absent wife. But wherever the Roman might happen to be, the old customs appropriate to this occasion were religiously observed. In every household the fresh green altar was built up, loaded with its pile of fragrant oils and spices, and hung with garlands of sweet flowers. As the scented flame burnt up it was sprinkled with libations of the best wine that the cellar could produce—a propitiatory offering to the preciding deity of the occasion, the ever-present genius. A beautiful superstition, from which the modern doctrine of the guardian angel was undoubtedly borrowed, assigned to each Roman at his birth one of these attendant genii, and at each anniversary the unseen spirit was welcomed and worshipped with votive sacrifices. At the ceremony assisted only the most intimate friends, who offered vows for their entertainer's welfare, not as we do by drinking his health, but by an old and slightly similar custom. This was the eating of sweet cakes made of flour, honey and oil. The host partook first and alone of the auspicious food, clad in a snow-white robe, and invoking blessings on his own head. While he ate, the guest remained devoutly silent, inwardly echoing a similar prayer; and then took their turn at the festal cakes; so that though the health of their entertainer was not exactly drunk, it might be said to be eaten.

The imaginative and unæthestic Romans were not, of course, the first people to observe birthday festivals. The sons of Job "feasted in their houses, each one his day," and almost every country from that time to this has recognized more or less solemnly a yearly jubilee so obvious. The Egyptians from the earliest times attached a great importance to the day, and even the hour, of their birth, and the birthday of the King was honoured with extraordinary rejoicings, by the suspension of all business, and the giving of public banquets. It is expressly recorded that this was one of these occasions which Pharaoh celebrated by giving a great feast to all his servants, by reinstating the chief butler, and hanging the chief baker. When Herod's birthday was kept, it was as a matter of course; and curiously enough his hilarity, like that of the Egyptian despot, showed itself in an act of murderous caprice. In later times the Emperors of the world, to whom extravagant liberality was as necessary a policy as parsimony is to some of their successors, adopted with eagerness so excellent an excuse for a national *fête* day, The Natalitian Games, at which Adrian is said to have exhibited a thousand wild beasts, were rigorously expected at the hand of each succeeding Cæsar, and their celebration served not only as a direct bribe to the sordid populace, but for a display of personal devotion to the august entertainer.

There are thus precedents of respectable antiquity for a custom which the Western nations have adopted with a fair amount of enthusiasm. Christianity has suppressed the little altar of green turf, the incense, and the prayers; and the place of the departed genius has not been filled, as it might, by the airy and fantastic form of an attendant spirit. On a rather unkind soil, beneath a sullen sky, a nation little inclined to picturesque displays has discarded ruthlessly the garlands of flowers; and of all the tasteful paraphernalia of a classic birthday there remains little or nothing but the libations of wine, which, by an irreverant but, perhaps, practical perversion, we pour down our own throats instead of into the sacred flame. A people so dry and so demonstrative as the English could not, indeed, be expected to make much fuss over so sentimental an affair. On one occasion only is the anniversary honoured with anything like a *fête*—when the son and heir of a landed proprietor comes of age—and the only reason for this is to be found in the old feudal custom, which obliged the lord of the fee to knight his son on attaining twenty one, and compelled the tenants to pay good round sums in the shape of aids to defray the consequent expense. It required no great spirit of liberality to feast the vassals and retainers when the haunches and sirloins, the new coats and suits of armour, were provided at the costs and charges of the invited guest. But in France every birthday of every householder is a sort of coming of age. The smallest farmer or retired shopkeeper is as well entitled to his *fête* day as the most aristocratic *rentier*, and the cakes and sugar-plums of the *bourgeois* are enjoyed with as much gusto in their humble way as the fireworks and champagne breakfast at the château. The Napoleons, with true Imperialistic instincts, adopted and adapted to modern habits the Natitianal Games, and during the Third Empire the birthdays of the Emperor and the Empress became national holidays, upon which the populace was studiously trained to shout for their modern "Panem et Circenses." On the fall of the Third Napoleon, and more especially after his death, it was only natural that the *fête* should be transferred to the birthday of him who might one day be Napoléon IV.; and the half-sad, half-hopeful homage which, in the shape of bouquets and addresses, will to-morrow be presented at Chislehurst, is a faint reflex of the spendid rejoicings which once marked the 15th. of August.

Birthdays are still celebrated in a lukewarm and half-hearted manner in many English families. As a rule this is little more than the formal and somewhat meaningless compliment of an after-dinner toast, for the purpose of which a choice bottle is produced, no matter exactly from what place. In order households it is the custom to present some more or less trifling gift. Generally the present is eminently ill chosen, and the utmost powers of hypocrisey boasted by the recipient are taxed to enable him to acknowledge it with becoming gratitude When then the family is large the pockets of the members of it are severely taxed, as well as their sentiments of affection, and almost the only birthday gifts which are given with good grace are those deposited as hostages with wealthy maiden aunts. Altogether, birthday generosity is a little too high a flight for our unromantic instincts, and the most successful style of natalitian festival in this practical new world is that in which the person principally interested, being of a sane body and mind, gives a select and genial dinner to the most friendly of his friends.

Give Your Girls an Allowance.—Where it is necessary to study economy in every way, and fathers complain of the frequent demands made upon their purses by their daughters, it is best for both parties that an allowance should be agreed on, and regularly paid every quarter. A Girl is thus taught the value of money, and she learns how to spend it; she is led to exercise her judgment and taste, and to restrict herself in one respect in order to indulge herself in another. Without an allowance, young persons cannot know the pleasure of denying themselves what might seem very reasonable and proper, for the sake of bestowing the sum thus saved in charity. There is no generosity in making presents to our friends, no benevolence in giving to the poor, if we are merely the distributors of another person's bounty, and have not one gratification the less ourselves. A feeling of responsibleness grows out of the disbursement of a certain sum which we regard as our own.—*Housekeeper.*

A Wife's Power.—A good wife is a man's wisdom, strength, and courage, a bad one is confusion, weakness and despair. No condition is hopeless to a man where the wife possesses firmness, decision and economy. There is no outward propriety which can counteract indolence, extravagance at home. No spirit can long endure bad influence. Man is strong; but his heart is not adamant. He needs a tranquil home, and especially if he is an intelligent man, with a whole head, he needs its moral force in the conflict of life. To recover his composure, home must be a place of peace and comfort. There his soul renews its strength and goes forth with renewed vigor, to encounter the labor and troubles of life. But if at home he finds no rest, and there is met with bad temper, jealousy and gloom, or assailed with complaints and censure, hope vanishes, and he sinks into despair.

Truthfulness to Children.—A parent, unlike a poet, is not born—he is made. There are certain things which he has at once to learn, or he will have no more influence over his child than if he were a common stranger, To gain obedience you must first set yourself to deserve it. Whatever you promise the little one, however small the thing may seem to you, and whatever trouble it costs you, perform it. Never let the doubt once enter into that innocent mind that you say what you do not mean, or will not act up to what you say. Make as few prohibitory laws as you possibly can, but once made keep them. In what is granted, as in what is denied, compel yoursel', however weary, or worried, or impatient, to administer always even handed justice.

—"Education does not commence with the alphabet. It begins with a mother's look, with a father's nod of approbation or a sign of reproof, with a sister's gentle pressure of the hand, or a brother's act of forbearance, with handfuls of flowers in green and daisy meadows, with birds' nests admired but not touched, with creeping ants and almost imperceptible emmets, with humming bees and glass beehives, with pleasant walks in shady lanes, and with thoughts directed in sweet and kindly tones, and words matured to acts of benevolence, to deeds of virtue, and to the source of all good, to God himself."

Books Received.

The Canadian Parliamentary Companion for 1876.—Edited by Henry J. Morgan, 11th Edition. This welcome directory comes to hand this year, with additions which will render it more useful than ever. It is compiled with great care from latest information. The book is now read in all parts of the Dominion, and in nearly every portion of the British Empire, and is everywhere regarded as an authority on Canadian affairs.

HOW TO WRITE LETTERS.—We have to thank Messrs. Sower, Potts & Co., 530, Market St., Philadelphia, for sending us this useful little volume. It is not the usual letter-writer's guide, offering silly and impossible models for beginners and others in epistolary difficulties, but shows how letters should be written, and addressed, and systematically presents such facts forms, laws, and usages as are supposed to be essential to good letter writing :—to use the words of the prospectus :

"HOW TO WRITE LETTERS" has a three-fold purpose ; first, to serve as a Text Book for the use of schools—auxiliary to the study of Language and Literature, and to a practical business course ; secondly, to assist private learners—those who are anxious to improve in letter writing but are unable or unwilling to avail themselves of the help of a living teacher ; thirdly, to supply an authoritative work to which persons of all classes, occupations, and professions may resort for information, in regard to the many perplexing questions concerning epistolary art and propriety, which are constantly occurring to every one in the exigencies of life.

In accordance with the *first part* of this design, the main subject, as well as each subordinate subject, has been developed from a central idea, carefully outlined and treated by the topical method, the whole being abundantly illustrated and utilized by appropriate models and exercises ; in accordance with the *second part* of the plan, every part of the subject has been explained so minutely as to leave no important point obscure or doubtful ; and according to the *third part*, the work has been made to cover a wide field—sometimes, perhaps, going beyond the strict requirements of the subject—and much supplemental matter of general interest has been added, concerning orthography, punctuation, titles, forms of address and salutation—American and English—, postal information, etc., constituting the whole of Parts II and III.

Sower, Potts & Co , have also recently published a work on *Child's Literature, Language Lessons, Object Lessons and Composition*, entitled—*Literature for little Folks*, by *Elizabeth Lloyd*. Price in Boards, 50 cents. Cloth, 75 cents.

This little volume is filled with sacred precepts and lessons in beauty, truth, refinement and culture, made so interesting and enticing that children and teachers will hail it with delight. Children in their Second Reader, whose time becomes tedious when not pleasantly occupied, will find this to just fit in and supply their needs. It contains the gems of sacred and child's literature, easy words and sentence lessons in composition, and object lessons from pictures. It instils literary taste, the use of correct and refined language, knowledge of authorship and habits of memory, observation and quick perception. The plan of the work is original and delightful.

FROEBEL'S KINDERGARTEN OCCUPATIONS.—We have received from Mr. E. Steiger, 22 and 24 Franklin St., New-York. *Frœbel and the Kindergarten system of Elementary Education* by Joseph Payne. *Hoffman's Kindergarten Toys and how to use them*, several tracts, and foom numbers of *Kindergarten Occupations*. These last are among what are called gifts in this very natural system of education for very young children. The first number relates to *Sticks for Stick-laying*. This Gift consists of thin wooden Sticks, about 13 inches long, to be cut into various lengths by the teacher or pupil, as occasion may require. These Sticks, like most of the previous Gifts, are designed to teach numerical proportions and forms. Stick-laying is an excellent preparation for *drawing*. The Multiplication Table is *practically* taught by means of this Gift. Reading, according to the *phonetic* method, is taught by imitating with these Sticks the letters of the Alphabet. In the same way the Roman and Arabic numerals are taught previous to instruction in writing.

500 assorted Sticks, 1, 2, 3, 4, and 5 inches long, and 265 Designs on 12 plates, in a strong Paper Box, with chromolithographed Cover. 75 cents.

The second number relates to *Drawing on Slates and Paper*. The material used is, first, *Slates* grooved in squares next, *Paper* ruled in squares. This method of beginning drawing is the most systematic and perfect ever invented for young children. It is interesting to note how rapidly, by it, even the youngest pupils advance.

1 Slate, 6½ by 8½ inches, grooved in squares ¼ inch wide on one side, with narrow frame, rounded corners ; 3 slate pencils, and 94 Designs on 12 plates, in a strong Paper Box, with chromo-lithographed Cover. 75 cents.

The third number furnishes the child with material for Perforating or Pricking designs on paper. The instruments are a pad or cushion made expressly, a perforating needle, which is furnished with a proper handle, dotted designs, and paper sheets. The paper is placed on the cushion, the design is placed over it and then the child is taught to prick it out with the needle by perforating the dotted lines of the design. The results are both instructive and amusing.

2 Perforating-Needles, 1 Perforating-Cushion, 1 Package of 20 leaves of paper, ruled in squares on one side, and 93 Designs on 12 plates, in a strong Paper Box, with chromo lithographed Cover. 75 cents.

The fourth number relates to *Weaving Paper*. Strips of colored paper are, by means of a steel, brass, or wooden needle of peculiar contruction, woven into another (differently-colored) leaf of paper, which is cut into strips throughout its entire surface, except that a margin is left at each end to keep the strips in their places. A very great variety of designs is thus produced, and the inventive powers of teacher and pupil are constantly stimulated.

1 Steel Weaving-Needle, 20 Mats of assorted colors and widths, with corresponding strips, and 60 Designs on 12 plates, in a strong Paper Box, with chromo-lithographed Cover, 75 cents.

These *Kindergarten Occupations* are a proper substitute for toys, dolls, and the like. They combine pleasure with instruction, engaging the attention of children when at home—during vacation, inclement weather, sickness, etc. While in an enchanting way keeping children to themselves, busy, contented, and quiet, these *Occupations* are invaluable as a first means of acquiring manual skill, artistic taste, and a love of study. We can recommend them to all schools where there are very young children, and for home use they will be found invaluable, combining as they do both instruction and amusement. Mr. Steiger will please accept our thanks for the same.

The Canada Educational Directory, by Alex. Marling LL. B., chief Clerk Education Dept. Ontario. Our thanks are due to the Publishers Messrs. Hunter, Rose & Co., for this book. It will be found a useful book of reference on educational matters in general throughout the Dominion, although very meagre information is given about some of the principal Educational Establishments of the Province of Quebec. The changes in the management of the Ministry of Public Instruction and in the Council of Public Instruction, Quebec, are not given : this may be owing to their having been gazetted too late for insertion in the Directory.

We have also to acknowledge with thanks the receipt of the following documents.

Thirty first annual Report of the Commissioners of Public Schools, Rhode Island.

Twenty sixth Report of the Commissioners of the Public Schools, State of Missouri.

Twenty ninth Report of the Commissioners of the Public Schools, New Hampshire.

School Report of the Commissioners of the Public Schools, Virginia 1875.

Report of Supt. of Education. Alabama, 1875.

Thirty ninth Annual Report, Board of Education. Massachusetts.

Reports of State Board and Supt. of Public Instruction. New Jersey.

Circular of Information No. 5. Washington.

Annual Report, Supt. of Schools Burlington.

Biennial Report of Supt of Public Instruction. Colorado,

Annual Report Board of Education. Ithaca.

Annual Report Ontario Schools of Agriculture,

The Public Schools of Rochester.

Forty seventh Annual report on Public Schools of Baltimore

Semi Annual Circular, No. 2, from Chief Supt. Education. Fredericton N. B.

Twentieth Annual Report of the Board of St. Louis Public Schools.

Wanted

For School section No. 2, Municipality of Grand Grève, Gaspé Bay, a Teacher with an Elementary School Diploma, able to teach both French and English. Salary : One hundred and sixty dollars. For further particulars apply to

Charles Esnouf,

Secty.-Treasurer,

Grand Grève, Co. Gaspé.

ABSTRACT FOR THE MONTH OF MARCH, 1876.

OF TRI-HOURLY METEOROLOGICAL OBSERVATIONS TATAKEN McGILL COLLEGE OBSERVATORY. HEIGHT ABOVE SEA LEVEL, 187 FEET.

Day.	Thermometer.				* Barometer.				†Mean Pressure of Vapour.	‡ Mean Relative Humidity.	Wind.		Sky Clouded in Tenths			° Rain and Snow Melted.	Day.
	Mean.	Max.	Min.	Range.	Mean.	‡ Max.	‡ Min.	Range.			General direction	Mean Velocity in m. p. hour.	Mean.	Max.	Min.		
1	23.26	26.0	21.1	4.9	30.1104	30.184	30.060	.124	.0965	78.0	W.	13.1	9.9	10	9	0.30	1
2	21.09	26.7	14.5	12.2	30.1320	29.212	30.064	.148	.0886	77.5	N. E.	6.9	8.6	10	0	Inapp.	2
3	16.47	25.1	9.0	16.1	30.2324	30.282	30.201	.081	.0566	60 6	W.	13.9	0.4	2	0		3
4	23.35	32.0	14.2	17.8	30.3082	30.354	30.266	.088	.0942	73.4	S. W.	15.0	4 1	10	0		4
Sunday 5		38.0	18.1	19.9							S. W.	13.7				0.01	5 Sunday
6	40.70	42.2	35 3	6.9	30.0691	30.165	29.970	.195	.2259	88 7	S. W.	18.5	10.0	10	10	0.02	6
7	41.31	52.0	32.5	19 5	29.8204	29.975	29.688	.287	.2142	82.9	S.	13.0	9.9	10	9	0.18	7
8	33.06	37.9	28.3	9.6	29.7520	29.993	29.620	.373	.1662	87.2	W.	15.0	10.0	10	10	0.24	8
9	23.62	30.0	20.3	9.7	30.1411	30.188	30.056	.132	.0926	73 2	N.	5.9	6.9	10	1		9
10	22.70	25.8	18.0	7.8	30.2497	30.324	30.185	.139	.0794	75.5	N. E.	11.2	8.9	10	1		10
11	30.91	37.0	22.1	14.9	30.2402	30.318	30.123	.195	.1509	74 4	E.	12.4	6.6	4	0		11
Sunday 12		38.5	32.9	5.6							S. E.	20.7					12 Sunday
13	24.21	36.8	4.3	32.3	29.8136	30.059	29.688	.371	.1320	86.9	S. W.	25.3	8.7	10	2	0.30	13
14	7.76	14.8	2.4	12.4	30.2792	30.380	30.150	.230	.0387	62.1	W.	26.2	1 0	10	0		14
15	12.42	23 0	1.8	21.2	30.4337	30.468	30.398	.070	.0495	62.5	N. W	19.0	0.0	10	0		15
16	12.85	20.0	5.5	14.5	30.1401	30.452	29.621	.831	.0549	67.0	N. E.	14.7	5.0	10	0	0.60	16
17	19.16	20.6	16.6	4.0	29.4177	29.543	29.355	.188	.0971	93.5	N. E.	14.0	10.0	10	10	0.80	17
18	8.87	17.5	3.0	14.5	29 8050	30.048	29.544	.504	.0435	66 1	N. W.	17.5	5.1	10	0	0.03	18
Sunday 19		21.0	3.6	24.6							W.	22.3					19 Sunday
20	13.71	21.8	3.3	18.5	30.3075	30.446	29.962	.484	.0577	69.9	E.	9.3	7.5	10	0	0.15	20
21	23.72	25 0	19.1	6.9	29.5126	29.791	29.358	.433	.1219	96.1	N. E.	17.7	10.0	10	10	1.76	21
22	25.67	29.4	22.0	7.4	29.7077	29.979	29.495	.484	.1142	82.3	W.	19.9	10.0	10	10	0.07	22
23	25.10	33.8	16.9	16 9	30.0327	30.063	30.008	.055	.0956	73.5	S. W.	16.1	2.5	10	0		23
24	26.67	34.8	19.1	15 7	30.2232	30.272	30.089	.183	.0977	67.7	W.	9.5	0.2	10	0		24
25	24.40	30.0	14.8	15.2	30.0490	30.245	29.756	.489	.1175	85.5	E.	14.2	9.7	1	8	0.28	25
Sunday 26		38.2	28.3	9.9								11.3				0.16	26 Sunday
27	34.95	39.0	31.1	7.9	29 7200	29.800	29.666	.134	.1705	84.1	W.	18.0	9.9	10	8	0.02	27
28	30.71	35.0	27.3	7.7	29.8529	29.927	29.659	.268	.1355	79.4		15.8	9.6	10	9	0.10	28
29	33.14	41.8	27.6	14.2	29.3057	29.450	29.190	.260	.1637	86.1		20.6	8.7	10	5	0.27	29
30	30.24	37.0	26.1	10.9	29.5195	29.620	29.455	.165	.1172	70.7	S. W.	9.6			3		30
31	33.15	42.6	25.0	17.6	29.7137	29.863	29.645	.318	.1371	72.9	W.	19.0	9.0	10	4	Inapp.	31
Means	24.56	31.39	17.96	13.43	29.9641			.277	.1107	76.9		15.46	711				

* Barometer readings reduced to sea-level and temperature of 32° Fahr. † Pressure of vapor in inches mercury. † Humidity relative saturation, 100. Observed. Ten inches of snow is taken as esqual to one inch of water.

Mean temperature of month, 24.56. Mean of maxima and minima temperature, 24.67. Greatest heat was 52.0 on the 7st; greatest cold was 3.6 below zero on the 19th,—giving a range of temperature for the month of 55.6 degrees. Greatest range of the thermometer in one day was 32.5, on the 16th; least range was 4.9 degrees on the 1st. Mean range for the month was 13.4 degrees. Mean height of the barometer for was 29.9611. Highest reading was 30.468 on the 15th; lowest reading was 29.199, on the 29th—giving a range of 1.278 inches. Mean elastic force of vapor in the atmosphere was equal to .1107 inches of mercury. Mean relative humidity was 76. Maximum relative humidity was 99 on the 21st. Minimum relative humidity was 42on the 3th. Mean velocity of the wind was 15.6 miles per hour; Greatest mileage in one hour was 49 on the 19th. Greatest velocity was 52 m. p. h. on the 13th. Mean direction of the wind, West. Mean of sky clouded was 71 per cent.

Rain fell on 5 days. Snow fell on 17 days Rain or snow fell on 19days. Rainfall, 0.74 inches. Snow fall 45.6 inches. Total precipitation in inches of water was 5.30.

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TABLE OF CONTENTS.

The Milky Way.

[From The Expanse of Heaven: by Proctor.]

Lo! these are but a portion of His ways: they utter but a whisper of His glory,—JOB XXVI. 14.

If on a calm, clear night, when there is no moon, we regard the starlit sky, we see spanning the vast concave of the heavens a zone of cloudy light. In our country [England], where the air is seldom free from haze and vapor, even when it appears clearest, this wonderful zone is faint and indistinct. Only in certain portions can we recognize its lustre so distinctly as to feel assured (unless acquainted with its figure and position) that we are not looking at clouds high up in the air. But in southern latitudes the Milky Way is aglow with light. There it is seen as a brilliant band athwart the heavens—

> A broad and ample road, whose dust is gold,
> And pavement stars, as stars to us appear.

We can not wonder that ancient astronomers should have looked with wonder on this amazing phenomenon. Steadfast as the stars amidst which its course is laid, the galaxy shone night after night before their eyes, and offered a noble problem for their thoughts. Nor did they fail to perceive the meaning of that steadfastness which, to the unthinking, would have had no significance. They saw that the wondrous cloud must lie at an enormous distance: and that in all probability its light must be produced by the combined luster of countless stars, removed to so great a distance as to be separately indistinguishable.

Manilius, their astronomical poet, put forward this stupendous conception, and we find Ovid describing the Milky Way in terms not unlike (setting aside their paganism) those in which one acquainted with modern astronomical results might poetically present them:—

> A way there is in heaven's extended plain,
> Which when the skies are clear is seen below,
> And mortals by the name of MILKY know;
> The groundwork is of stars, through which the road
> Lies open to the Thunderer's abode.

But it is when the Milky Way is studied with the telescope that the true glories of this wonderful zone are seen. A large instrument is not needed. Galileo saw the wonders of the galaxy with his small and imperfect "optic tube"—a telescope which, in our day, though invaluable as a relic of the great astronomer, would be worth but a few shillings, so far as its optical performance is concerned. Wright, of Durham, analyzed the depths of the Milky Way, and formed a sound opinion as to the true nature of the zone, by means of a telescope only ten inches in length. The smallest telescope which the opticians sell for star-gazing, when turned upon certain parts of the galaxy, will reveal a scene of wonder which is calculated to fill the least thoughtful mind with a sense of the infinite power and wisdom of the Almighty. Countless stars pass into view as the telescope is swayed by the earth's rotation athwart the rich regions of the galaxy.

There are stars of all orders of brightness, from those which (seen by the telescope) resemble in luster the leading glories of the firmament, down to tiny points of light only caught by momentary twinklings. Every variety of arrangement is seen. Here the stars are scattered as over the skies at night; there they cluster in groups, as though drawn together by some irresistible power; in one region they seem to form sprays of stars like diamonds sprinkled over fern leaves; elsewhere they lie in streams and rows, in coronets and

loops and festoons resembling the star festoon which, in the constellation Perseus, garlands the black robe of night. Nor are varieties of color wanting to render the display more wonderful and more beautiful. Many of the stars which crowd upon the view are red, orange, and yellow. Among them are groups of two and three and four (multiple stars, as they are called), amongst which blue and green and lilac and purple stars appear, forming the most charming contrast to the ruddy and yellow orbs near which they are commonly seen.

But it is when we consider what it is that we are really contemplating that the true meaning of the scene is discerned, that the true lesson taught by the star depths is understood. Then we may say with the poet, but in another sense—

> The floor of heaven
> Is thick inlaid with patines of bright gold ;
> There's not the smallest orb which thou behold'st
> But in his motion like an angel sings,
> Still quiring to the young-eyed cherubim.

The least of the stars seen in the galactic depths—even though the telescope which reveals it, be the mightiest yet made by man, so that with all other telescopes that star would be unseen—is a sun like our own. It is a mighty mass, capable of swaying by its attraction the motions of worlds, like our earth and her fellow-planets, circling in their stately courses around it. It is an orb instinct with life (if one may so speak), aglow with fiery energy, pouring out each moment supplies of life and power to the worlds which circle around it. It is a mighty engine, working out the purpose of its great Creator; it is agiant heart, whose pulsations are the source whence myriad forms of life derive support; and until the fuel which maintains its fires shall be consumed, that mighty engine will fulfill its work; until its life-blood shall be exhausted, that giant heart will throb unceasingly. And more wonderful yet, perhaps, is the thought that where all seems peace and repose, there is in reality a clangor and a tumult compared with which all the forms of uproar known upon earth sink into utter insignificance.

We know something of the processes at work upon our own sun. We know of storms raging there, in which fiery vapor masses, tens of thousands of miles in breadth, sweep onward at a rate exceeding a hundred-fold in velocity the swiftest rush of our express trains. We see matter flung forth from the depths beneath the sun's blazing surface to a height exceeding ten and twenty-fold the diameter of the globe on which we live. And we know that these tremendous motions, though they seem to take place silently, must in reality be accompanied with a tumult and uproar altogether inconceivable. We know that precisely as distance so reduces the seeming dimensions of these vapor masses, and their seeming rate of motion, that even in the most powerful telescopes they appear like the tiniest of the clouds that fleck the bosom of the summer sky, and change as slowly in their seeming shape; so distance partly, and partly the absence of a medium to convey the sound, reduces to an utter silence a noise and clangor compared with which the roar of the hurricane, the crash of the thunderbolt- the bellowing of the volcano, and the hideous groaning of the earthquake are as absolute silence.

What, then, must be our thoughts when we see thousands of stars, all suns like our own, and many probably far surpassing him in splendor, passing in stately progress across the telescopic field of view? The mind sinks appelled before the amazing meaning of the display. As we gaze at the wondrous scene an infinite significance is found in the words of the inspired Psalmist: "When I consider the heavens, the work of Thy hands, the sun and stars which Thou hast ordained, what is man that Thou art mindful of him? or the son of man that Thou regardest him?"

It has been said that with the telescopes with which the Herschels have surveyed the depths of heaven twenty millions of stars are visible. But these telescopes do not penetrate to the limits of the star system. In certain parts of the Milky Way, Sir W. Herschel not only failed to penetrate the star depths with his guaging telescope (here spoken of), though the mirror was eighteen inches in width; but even when he brought into action his great forty-feet telescope, with its mirror four feet across, he still saw that cloudy light which speaks of star depths as yet unfathomed. Nay, the giant telescope of Lord Rosse has utterly failed to penetrate the ocean of space that surrounds us on all sides.

And even this is not all. These efforts to resolve the galaxy into its component stars have been applied to portions of the Milky Way which (there is now reason to believe) are relatively near to us. But in the survey of the heavens with powerful telescopes streams of cloudy light have been seen, so faint as to convey the idea of infinite distance, and no telescope yet made by man has shown the separate stars which doubtless constitute these almost evanescent star-regions. We are thus brought into the presence of star clouds as mysterious to ourselves as the star clouds of the galaxy were to the astronomers of old times. After penetrating, by means of the telescope, to depths exceeding millions of times the distance of the sun (inconceivable though that distance is), we find ourselves still surrounded by the same mysteries as when we first started. Around us and before us are still the infinite star depths, and the only certain lesson we can be said to have learned is, that those depths are and must ever remain unfathomable. Truly, the German poet Richter has spoken well in those wonderful words which our own prose poet De Quincey has so nobly translated; his splendid vision aptly expresses the feebleness of man's conceptions in the presence of the infinite wonders of creation:

"God called up from dreams a man into the vestibule of heaven, saying, 'Come thou hither, and see the glory of my house.' And to the angels which stood around his throne he said, 'Take him, strip from him his robes of flesh; cleanse his vision, and put a new breath into his notrils, only touch not with any change his human heart, the heart that weeps and trembles.' It was done; and with a mighty angel for his guide the man stood ready for his infinite voyage; and from the terraces of heaven, without sound or farewell, at once they wheeled away into endless space. Sometimes with the solemn flight of angel wings they passed through Zaharas of darkness, through wildernesses of death, that divided the worlds of life; sometimes they swept over frontiers that were quickening under prophetic motions from God. Then from a distance which is counted only in heaven, light dawned for a time through a shapeless film; by unutterable pace the light swept to them, they by unutterable pace to the light. In a moment the rushing of planets was upon them; in a moment the blazing of suns was around them.

"Then came eternities of twilight, that revealed but were not revealed. On the right hand and the left towered mighty constellations, that by selfrepetitions and answers from afar, that by counter-positions, built up triumphal gates, whose architraves, whose archways, horizontal, upright, rested, rose, at altitude, by spans

that seemed ghostly from infinitude. Without measure were the architraves, past number were the archways, beyond memory the gates. Within were stairs that scaled the eternities around; above was below and below was above, to the man stripped of gravitating body; depth was swallowed up in height insurmountable, height was swallowed up in depth unfathomable. Suddenly, as thus they rode from infinite to infinite, suddenly, as thus they tilted over abysmal worlds, a mighty cry arose that systems more mysterious, that worlds more billowy, other hights and other depths, were coming, were nearing, were at hand.

"Then the man sighed and stopped, shuddered and wept. His overladen heart uttered itself in tears, and he said, 'Angel, I will go no further; for the spirit of man acheth with this infinity. Insufferable is the glory of God. Let me lie down in the grave, and hide me from the persecution of the Infinite, for end I see there is none.' And from all the listening stars that shone around issued a choral voice, 'The man speaketh truly: end there is none that ever yet we heard of!' 'End is there none?' the angel solemnly demanded; 'is there indeed no end? And is this the sorrow that fills you?' But no voice answered, that he might answer himself. Then the angel threw up his glorious hands to the heaven of heavens, saying, 'End is there none to the universe of God. Lo! also there is no beginning.'"

The Study of Natural History.

BY PRES. S. H. McCOLLESTER.

Philosophy, poetry, and history have their representative men. Thus, Bacon is the exponent of philosophy, Shakespeare of poetry, and Humboldt of natural history. The latter was a peculiar man by nature. He was gifted with a comprehensive mind and a fine temperament. Pure in his aspirations, he was disposed to seek and know the good. In his course he was not special or partial. He seemed to strike out in all directions. He made intimate friends of the stones, flowers, and stars. Certain minds may have gone deeper into the strata of the earth, or soared higher into the heavens; but it is believed that no other mind has exercised by common consent such unquestioned authority on all scientific subjects. He is the world's cosmopolitan, the king in the realm of universal science. He seemed to assimilate in himself the knowledge of others; and when he had explored, as far as possible, with borrowed light, he kindled his own torch, and journeyed far on in hidden ways. Delighted, ennobled, strengthened, at length he returned, ladened with the trophies of science and patient endeavor, and presented to the world his wonderful picture of things above, around, and below—his "Cosmos."

His life was one of remarkable activity. He was always in earnest, and determined in his work. He felt that one can not borrow of nature, but must buy and pay down. He indulged in no wild fancies or visionary theories, but pressed on to the discovery of facts.

Though the frost of ninety winters had rested upon his head, the heat of ninety summers had scored his countenance, and the observations of four-score and ten years had furnished his mind with the riches of wisdom and truth, yet his heart was young, his mind active, and his love of study undiminished. Ripe in experience and culture, he passed peacefully to the higher life, leving behind the sure testimony that the study and pursuit of natural history is productive of great good, and calculated to elevate the soul and prepare it better for duties here, and for the richest joys hereafter.

It were well if more would walk in the footsteps of this great man, this student of nature. But it is a lamentable fact, that the study of natural history is greatly neglected in this country. Our educational institutions give it too little attention. It occupies the merest nook in the liberal course of study. Students are not often required to take it up until they have nearly run the college race and reached the goal. Wearied with many studies, and worn by years of mental application, they wear out a season in contriving how to avoid this and that branch of natural science; or, otherwise, if a student chances to be enamored with nature, he is liable to be set down as belonging to the school-girl order, romantic and weak. How is it possible in such cases that the real object of education can be understood and appreciated?

In some parts of Europe, a more judicious method is chosen. The child is early made acquainted with the elementary principles of natural history. Almost every home has its museum of curiosities. Children delight to spend their holidays in highways and by the hedges, in woods and glens, by lakes and brooks, becoming familiar with animal life in all its varieties and forms. Natural history occupies a high place in their institutions of learning. Their graduates are men of the most extensive culture and broadest views. Their travelers see the most, and describe the best. Their scholars are the most profound, and their literature the most mature.

It is also true of America that she has some amateurs of natural science. Still, is it not a fact that in this country more attention should be given to chemistry, botany, astronomy, geology, zoology, and practical science? To do this, it is not necessary that less time should be devoted to the study of the classics. These have, and should have, a prominent position. The ancient languages are the mirrors through which are to be seen great and noble minds. It is important that the student of the present day should become acquainted with the style of their finished productions, the care with which they selected their expressions, the zeal with which they pursued the study of eloquence, the high estimate which they had of patriotism, fidelity, and heroism. The student should become familiar with the tragic poet, the epic bard, and the learned sage. This can be done, it is believed, only by traveling, without poney or staff, in the toilsome and thorny way which leads into the dark land of a departed people. Yet all this need not interfere with that special attention which is claimed for the study of natural hisiory. Contact with nature has a tendency to freshen and invigorate all the powers and faculties of the mind. Let one have for companions flowers, stones, beasts, and birds, and he will be all the more likely to have a quick relish for classic lore.

Every college, before the senior year, ought to engage the thought and enlist the interest of the students in the different branches of natural history. Let them become interested in these, and they would have something to engage their minds in recreation hours. Then their leisure time would seldom be spent in dram-shops and gaming-saloons. They would prefer to go into the woods and fields, to ramble by brook and seashore, applying the principles of science and philosophy. It would be a pleasure for them to investigate and inquire into the why and wherefore. In the course of a year or two, by improving the odd moments, they would be able to collect, classify, and arrange a choice cabinet of insects, flowers, shells, and minerals. All the

while, they would be gaining also in mental discipline. Their analytical powers would be brought into constant exercise. New thoughts and experiences would inspire and inform their minds, and give a fresh glow to their whole life. The would go forth from their Alma Mater to *be* and to *do* good. They would live in a world of matchless beauty and truth, whence they would bring forth many things, new and old, to delight and instruct.

The special work to be done for the student, is to enable him to help himself. Without self effort, mind can no more thrive than a forest of oaks can grow crammed into a damp, cold cavern. How many going out from our institutions, make a perfect failure when they come to act for themselves! They have been *carried* thus far; the way has not been pointed out, and they forced to journey on themselves. They have been more ambitious to recite well than to think well. Hence many are smatterers, who would be philosophers if they had been correctly taught and encouraged. They judge themselves wise, because they have walked in the beaten track of some *literateur*.

If a student can be induced early to bow and worship at nature's shrine, he will there learn the most important lessons of his life. He will soon discover how little he knows, and how much there is to be known. The world will be full of the mysterious; but the new, the beautiful, and true will attract him onward. There will fall into his bosom, like manna from heaven, thoughts, truths, and suggestions, which will point the way to a happy and useful life. By the time he has reached one height, he will have gained discipline and strength, so as to be ready to push on still higher. All the while he will be meek, humble, adoring, trusting. Thus it was with Humboldt, Miller, Hitchcock, and has been with every true scholar of nature.

Perhaps the strongest reason which can be urged in favor of devoting more time and attention to the natural sciences is that they tend to carry man out of himself and unite him in close relationship to God. By them he is convinced that the visible is a sure proof of the invisible, that the essence of things is spiritual, and that man, for the most part in this life, must walk by faith. The center of the great circle of sciences rests on faith in God. The student of nature can advance but a little way by sight. The chemist, with his crucible and lamp, may separate the compound into its simple elements, but he can not ascertain how, whence, or why the latter exist.

The botanist may dissect the tree — root, trunk, branch, stem, leaf, and flower; yet the life-principle he cannot discover. How and why it grows he can not understand. The geologist may delve into the crust of the earth, discovering wonderful facts concerning its history and changes; yet he can not advance a great distance before he is involved in darkness and lost in mystery. Faith alone can light up his way, and speed him onward. The astronomer may soar and revel among the stars; he may see much to delight and astonish; but his physical sight soon fails him, and by the eye of faith only can he still gaze up among those infinite worlds, and at length see God. So it is with all who travel in nature's realm; they soon reach that point beyond which no mortal sense can penetrate. But by thus walking and exploring, they are prepared to beleive. They can not rest satisfied until, from the plant, the stone, and the star, they mount by faith up to God. The more true science there is, the more faith. The greater the knowledge of the earth, the clearer the insight into heaven. The more the mind admires nature, the more the heart delights in revelation. The life of the divine Teacher is an illustration of this. His instructions show he had a passionate fondness for the works of nature. His sermons are replete with metaphors, similes, and illustrations drawn from the grass, the lily, the sparrow, the lake, and the mountain. He went into the wilderness to pray and to prepare himself for his great duties. He was baptized in the Jordan, taught by the Sea of Galilee, was transfigured on Tabor, and bade adieu to his disciples in the midst of the quiet and charming beauties of Ascension Mount.

The mind that is really in fellowship with nature, and understands her teachings, can not turn with indifference from the word of God. It will find no soil here sufficiently deep in which to grow and perfect the soul. The true and faithful student of natural history will willingly bow at the feet of Jesus, and learn of him. He will discover beauty and truth in the completeness of Matthew, the brevity of Mark, the definiteness of Luke, the humanity of John, the earnestness of Peter, the devotion of James, and the logic of Paul. Sacred history is the completion of natural history. Let students become adepts in the latter, and they will be faithful disciples of the former. Let them become familiar with the natural, and they will become earnest seekers after the spiritual.

Agricultural Chemistry or Scientific Farming

By Andrew Keegan.

(Read before the Teacher's Association in connection with the Jacques-Cartier Normal School, Montreal, May 26th, 1876.)

Mr. President and Gentlemen,—The subject I wish to bring under your notice is *Agricultural Chemistry or Scientific Farming.*

Agriculture is an honourable profession; the first man that ever lived upon the earth, was an Agriculturist, and Agriculture must exist till the last man leaves it.

The knowledge which an Agriculturist ought to possess, needs not extend very far. He should at least possess a thorough knowledge of those elements that form plants, the nature and combination of the soil in which they grow, and the kind and quantity of fertilizing manure he is to apply. It is upon this very knowledge that, practically speaking, the subsistence of the whole human race is dependent: the tiller of the soil is the purveyor for all mankind. To know this, the Agriculturist must have a knowledge of *Agricultural Chemistry.*

It is now well understood, that plants must be fed, and that every plant is fastidious, and will only receive its own particular and proper kind of food. The diet of plants is as much to be attended to for their health and maturity, as the diet of a child for its health and growth.

The primary object in cultivating the ground is to give nutritious food to the plant's growth. Their food must be of two kinds, *organic* and *inorganic*, and is derived from two sources, the *atmosphere* and the *soil* in which they are fixed.

The organic food of plants is derived, as it has been said, from the atmosphere and supplied by nature without human aid. It consists of four simple elements, namely: *Carbon*, *Oxygen*, *Hydrogen* and *Nitrogen.* The inorganic part of plants consists of ten or twelve simple elements, namely: *Potash*, *Soda*, *Lime*, *Silica*, *Phosphoric Acid*, *Sulphuric Acid*, and some other. The organic part of plants is vastly the greater, it forms from 90 to 99 per cent of almost all plants, as may be shown by burning a plant. That which passes away or disappears,

forms carbon, oxygen, hydrogen and nitrogen; and the ashes or what remains, forms the inorganic part, which is very small when the size of the plant, before it was burnt, is considered.

Now, to say something of the properties of these four simple elements that form the organic part of plants; three are gases, namely: oxygen, hydrogen and nitrogen; the fourth, carbon, is a solid—the diamond is pure carbon. Carbon and oxygen form carbonic acid gas, which is a most deadly poison when taken into the lungs; it is said that no air-breathing animal can live more than two minutes in pure carbonic acid gas. It is produced in many ways: 1st. all animals exhale it from their lungs; 2nd. all matter in the state of combustion; 3rd. all decaying vegetable matter, and 4th. All decomposing animal substances.

It may be here naturally asked, why not the whole atmosphere become vitiated, and unfit for the habitation of animal life. But the Great Dispenser of all good has so ordained it, that what would destroy animal life, becomes food for the vegetable kingdom. Plants, by their leaves and green parts, take in or absorb carbonic acid gas, retain the carbon which adds to their size, and forms their fibres or woody part, and give back the Oxgen for the support of animal life; for no animal can subsist without its presence: this grand discovery was made in the last century.

A chemist, by name *Bonnet*, was the first who observed the phenomenon of gaseous evolution by the leaves of plants; *Dr. Priestly*, in 1774, discovered the gas to be oxygen. Another chemist, *Ingenhouze*, showed that the plant should come under the influence of the sun's light and heat; and *Sennabier*, another philosopher, showed that the oxygen gas, so obtained, is the product of the decomposition of carbonic acid gas.

Oxygen and Hydrogen form all the water that surrounds the globe; two parts of hydrogen and one of oxygen by volume, form water. Hydrogen and nitrogen form Ammonia, or what is more commonly called hartshorn.

It is now understood that plants do not take in nitrogen from the air; and as nitrogen is found in the constitution of plants and animals, then the plant must take it in by the root or spongeles from the soil, in the state of ammonia, which is furnished to the soil in the state of manure.

All manure contains ammonia, but in the greatest quantity in animal manure. An obvious illustration may be seen—if you examine the bedding that is taken from horses, and pile it outside the stable for a week or so, till it begins to heat or decompose, then turn it over, and you will find a very pungent gas to escape from it, the same as from ammonia or hartshorn bought at the apothecary's, but not so strong. And you may see white flaky matter; this is Ammonia in a solid state, which plants or vegetable take in from the soil.

Oxygen and nitrogen form the air that surrounds the earth.—In every hundred gallons of common air, there are 20 of oxygen and 80 gallons of nitrogen.

Now, as the food of plants is derived from the atmosphere and the land in which they grow, and if any of these elements are wanting in the soil, it must be supplied by the agriculturist in the form of manure.

In order to do this, the farmer should have a knowledge of *agricultural chemistry*. The idea that the farmer requires nothing but practice and experience to ensure success, is as erroneous as to suppose the school-teacher requires no knowledge of geography, grammar, or arithmetic.

The failure of practical men in attempting to apply some new principles, is owing to the want of knowledge and skill in combining *science* with *practice*. The man who knows the principal properties and the particular energies of the material with which he has to do, provided always he has practical skill, is obviously in a much better position, than one that knows nothing of them, and scorns the very idea of learning anything from books.

Science points out precisely the composition of both plant and soil; and the particular kind of exhaustion effected by different kinds of plants. Science tells us all our common plants contain lime, potash, soda, magnesia, sulphuric acid, chlorine, silica, oxide of iron and some others. Now, it is known these elements differ in amount in different plants: thus wheat requires larger quantities of lime, potash, &c, than some other of the several grasses. Science, not only indicates that different varieties, but that different parts of plants exhaust the soil in different proportions. Science, in a word, points out, 1st *the cause of the exhaustion*, and 2nd *the means of preventing it*.

It is not too much to assert, that the agricultural produce of this Province might be doubled, if a system of improved tillage, such as is within the power of all to adopt, were but generally practised and more liberally aided and encouraged by our Provincial Government. The individual land-owners themselves would not only be largely benefitted, but a great national advantage would occur therefrom—this is in fact the only high road to *national wealth*.

Another error is the farmers of this Province generally cultivate too much land, that is, more land is ploughed than is well and properby cultivated: hence the low average and miserable crops of grain so generally harvested throughout the country. As an evidence of this fact, it has been shown the very low average of 8 bushels of wheat per acre for this Province—this must be admitted is far below the natural capabilities of the soil: for it has been shown, some 80 years ago, this Province produced the best wheat in America. It was the Canadian wheat that took the first prizes at the great London and Paris exhibitions some 24 years ago, and when it was debated, how it was, the conclusion come to was that it was owing in a great degree, if not all, to the climate. For wheat seed, put into the ground until it begins to blossom, requires a temperature of an average of 54 degrees, and during its blossoming 57—and from the time the blossom falls until the grain comes to maturity, an average of 68 degrees Fahrenheit, which is the temperature that Canada possesses.

Properly speaking, there are no barren soils in Canada; here and there indeed, the rocks and roots of trees sometimes obtrude themselves to prevent cultivation. There are a few soils in Canada incapable of cultivation: but none but may be vastly improved by proper culture and the judicious application of fertilizers.

Agricultural knowledge, whether you consider the nature of the soil or plant, the mode of preparing the one or cultivating the other, the instruments to be used, or the kind of plants to be grown, is daily assuming more and more importance from the fact—that the ignorant agriculturist cannot compete with his more enlightened neighbour: the more knowledge which a man applies to the cultivation of his farm, the greater will be its produce, and the better it will pay.

There are considerations arising from the position of Canada which render scientific cultivation a matter of paramount importance. Canada offers many advantages to farmers: a rich soil, in some places rich almost beyond competition—ready markets by rails, canals,

rivers and lakes—ready access to the best markets in the world—the produce of the field are nearer to European markets, by several days, than some of those of the neighbouring states.

The long winters are indeed a disadvantage to the farmers; they consume in part a great share of the produce of the summer. However, they can use this season as a season of comparative rest, and recruit themselves in health and strength; and, finally, they must spend it in studying agriculture, in acquiring a knowledge of the soil of their farms, the best manner to improve it, the plants most adapted to it, the most useful instruments, and of all other information needed in their business. In this way, the winter may be turned to real advantage.

Could not agriculture, as a science, be taught in some, if not in all our public schools, and might not some school teachers give sometimes practical instructions in Agricultural Chemistry? By this means, the germ of scientific agriculture might be sown.

If the Provincial Government would establish one or more agricultural schools with a model farm of 60 or 80 acres of land attached to each of them, with professors understanding both theory and practice, and take in, as agriculturist pupils, from 40 to 50 young men, the sons of the poorer farmers of this Province, for the term of two years, to be supported and found in everything at the expense of the government, it would be the great means of diffusing a general knowledge of scientific agriculture throughout this Province.

GOOD teachers are good sleepers, not by day but by night. A medical friend says: "One man may do with a little less sleep than another; but as a general rule, if you want a clerk, a lieutenant, a lawyer, a physician, a legislator, a judge, a president, or a pastor, do not trust your interests to any man who does not take on the average eight good solid hours of sleep out of every twenty-four. Whatever may be his reason for it, if he does not give himself that, he will snap some time just when you want him to be strong."

Good, sweet, sound sleep, "Airy-light from pure digestion bred," is nature's true eye-opener, and for physical vigor is the only sure tonic and preparation. Those who pay court to Somnus are seldom found in the halls of Bacchus. Glowing cheeks and ambrosial locks are the gift of Hebe to those who love an early pillow. To-morrow's labors demand the vigorous life which comes from solid forgetfulness and the dreamiest inactivity. Good sleep cures sleepiness, and sleepy-headedness. Take your fill of the pure article, unadulterated with chloral, or any of the quieting drugs distilled from poppy or mandragora, or all the drowsy syrups of the world.

POETRY.

The Horizon.

BY S. WADDINGTON.

I sit on the sands by the sea,
While the tired tides wearily flow,
And the waves seem to whisper to me
Strange truths that I know not, or know;
The lore of past ages they bring,
As they break on the shore at my feet,
And the finite and infinite meet
In the words of the song that they sing:
If the universe be but One,
And the bloom be one with the tree,
Though the day that has been is done,
The thing that has been shall be.

I gaze o'er the watery plain,
Till the heavens drop down to the sea,
And I cry as I gaze thus in vain
At what is not, but seemeth to be;
Ah, local and limited man!
Ever longing to travel through space,
Yet fastened and fixed in one place
Running forward the length of a span.
Though each part with the whole be one,
Yet men must patiently wait;
Though the day that has been is done,
They must labour both early and late.

Still in vain do we struggle to pass
The horizon that limits our sight;
But darkly to-day through a glass
We see, and soon cometh the night;
And what in the future shall be,
And what in the past may have been,
Ere the sun and the sunlight were seen,
Lie far on the infinite sea;
While the whispering waves sing on—
If the bloom be one with three,
Though the day that has been is done,
The thing that has been shall be.

—*Tinsley's Magazine.*

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Department of Public Instruction.

Quebec, 19th November, 1875.

To His Excellency the Honourable René-Edouard Caron, Lieutenant-Governor of the Province of Quebec.

SIR,

I have the honour to submit to Your Excellency, my report on public instruction in this Province, for the year 1873–74, and in part for that of 1875.

The short period which has elapsed since I was placed at the head of this department, has not enabled me to acquaint myself sufficiently with its necessities, and to investigate the improvements which are required to render our system more efficacious and better calculated to supply the wants of our population.

The position in which the Minister of Public Instruction is placed, upon assuming the direction of so important a department, and of which he necessarily must know but little, is extremely difficult. The numerous duties with which he is entrusted, hardly allow him sufficient time to follow the details of its working, or to see that, from year to year, (and which is very important) all that is calculated to improve the system by taking advantage of the experience of other nations, be introduced into it.

Hence it follows that this office can not be filled with advantage to the country, except by a man acquainted with the subject, a devoted friend of education, and in a position to give his whole time to this difficult task.

His functions being only liable to revocation at pleasure, he would have the leisure to make the necessary studies and to acquire the experience which is essential.

These reasons have determined me to re-establish the office of superintendent, completely separated from politics; and I propose to submit a law to this effect to the next parliament.

I am also of opinion that it would be advisable to confide to the superintendent the task of codifying our

various laws respecting education. He can devote to it the necessary time, examine the laws of other countries, and avail himself of the experience of competent persons.

The present report, like its predecessors, marks a certain progress, either in the number of scholars, in the degree of instruction, or in the figures connected with the superior institutions established during the year.

The number of classical and industrials colleges, 37 last year, is now 41. The number of scholars has also increased from 7,113 to 7,552, an increase of 439. These establishments are divided as follows: 21 classical colleges,—16 catholic and 5 protestant; 20 industrial colleges,—18 catholic and 2 protestant. In the former are taught all the branches of a classical education,—the latin and greek languages, literature, philosophy, mathematics, astronomy, history, political economy, &c.

In the industrial colleges, the course is commercial or academical. It includes the french and english languages, arithmetic, bookkeeping by single and double entry, history, literature, style, in so far as regards commercial correspondance, linear drawing, geography, &c.

These institutions, as also model schools, are of the highest importance, and I therefore regret that they are not more numerous.

NORMAL SCHOOLS.

These schools continue to supply a considerable contingent of male and female teachers, competent to discharge their duties, and whose merits are well appreciated, for there is never a sufficient number to satisfy the demand. They render great services, in providing our model schools and academies with persons capable of directing them.

The number of scholars who this year attended the three schools is 275, against 254 last year.

The reports of the authorities of these institutions, attest the good conduct, laboriousness and success of the pupils; as may be ascertained by reading the reports.

ACADEMIES FOR BOYS OR MIXED.

These institutions are 62 in number, 31 being catholic and 31 protestant. The number of catholic pupils is 4,028, that of the protestants 2,411, forming a total of 6,439.

It is scarcely possible to form a comparison between the present and the past years, owing to the tables of statistics having been modified. To each academy or model school is attached an elementary class. Until last year the total number of scholars, without distinction of class, was entered in the column of academies, or model schools. Now the tables have been changed, so that at present, the pupils of the elementary course are entered as connected with the primary school, and only such as pursue the superior course, are entered as belonging to the academy or model school. Thus a much more exact idea of the real state of affairs may be obtained.

The same remark applies to academies for girls; they number 67, attended by 11,260 pupils. With the exception of 7 or 8, these academies are directed by religious ladies.

In boys' academies, with very slight exceptions, the same course is pursued as in industrial colleges. In point of fact, all these institutions may be classed under the same denomination. The department has, however, thought proper to preserve the nomenclature which they have themselves adopted. In girls' academies, recitation, french and english, arithmetic, a little bookkeeping, geography, history, the elements of literature, drawing, rhetoric, philosophy, astronomy, music, domestic economy, sewing, embroidery, and other manual occupations, are carefully taught.

If an objection could be made to this system, it would be that it is too extensive. It would be doubtless much better to restrict the studies to a more limited field, with the certainty of thoroughly going over the ground. The time that is given to superfluous studies would be much more advantageously spent on solid and necessary instruction.

I however notice with pleasure that several of these institutions have profited by the remarks of my predecessors on this subject; but the number is not as yet large. I do not, however, despair of seeing before very long, a more logical system every where adopted. The new classification has greatly increased the number of of primary schools, for dissentient and independent schools are classified, a course never hitherto followed. Hence there appears an increase of 19,705 in the number of pupils.

One half of these schools may be considered as first class; a part of the other half as second class, and the remainder as third class or middling.

Twenty-six new municipalities and 101 new schools have been established during the year, raising the total figure to 2,787.

The number of new buildings erected during the year was 101, giving a total of 3,482. Unhappily there are still a number of districts, which are unprovided for in this respect. I cannot too strongly urge upon school commissioners and inspectors to insist upon each school division having its school-house. A leased building is never very suitable for school purposes. In the first place, it is seldom if ever in a central position, and next, it almost invariably contains a family. This is a cause of inattention among the pupils, and the source of difficulties which inevitably retard their progress.

The inspectors should make it their care to see that all school houses are thoroughly habitable, of sufficient size, kept in good repair, and provided with necessary apparatus.

The small statistical tables, hereinafter given, show the progress made in the various branches of instruction.

MALE AND FEMALE DEAF-MUTES.

There are in the Province, three establishments for the education of male and female deaf-mutes; two for catholics and one for protestants. They are all three in Montreal. The catholics have a school or institute for boys and another for girls. The protestants have but one for both sexes.

The catholic institute established in Côteau St. Louis, is a four story building of stone, 80 feet by 45, which must soon be enlarged to supply the demands for admission. The house cost, with the ground, about $24,000. The number of pupils this year is 77. There are seven professors for the different branches of learning. The institute is under the direction of Rev. A. Bélanger, of the order of St. Viator.

The school of female deaf-mutes, managed by the sisters of Providence, is situated at the upper end of St. Denis Street, and is a handsome stone house of three stories. The main body of the building is 105 feet by 45, with a wing of 118 feet by 55. This year, there have been 157 scholars, requiring the care of 27 nuns, as much for teaching as for other work. The house and grounds are valued at $112,000.

The land is due to the generosity of M. C. S. Cherrier, Q. C., and the expenses of building as well as those of maintenance, are to a great extent covered by gifts of public charity.

Up to the present, the sum voted by the Legislature could only be considered as very inadequate. But I am happy to be able to state, that this year, a sum has been voted, more in keeping with the wants of the institution.

The protestant institute is under the direction of a special corporation. It possesses a property valued at $17,000, which is much too small. On this account the directors have decided to sell it, and have bought, near the mountain, a lot of five acres, on which they propose to erect a suitable building. They have already collected, by means of subscriptions, an amount more than sufficient to pay for the new lot and the building.

There are, in this institute, two separate departments for boys and girls, under the direction of Mr. and Mrs. Widd, assisted by two professors. They have received 27 scholars this year, and want of space alone prevents them from receiving more.

The course of instruction followed in these schools is nearly the same as that in ordinary institutions. It includes reading, writing, arithmetic, geography, history, &c., and religious instruction. These different branches are more or less studied, according to the ability of the pupil and the length of his stay in the institution.

An apprenticeship to different branches of manual work is joined to the course of study, varied according to the sex of the pupils.

THE INSTITUTE FOR THE BLIND.

This establishment owes its existence, which dates fifteen years back, to the Rev. V. Rousselot, curé of Notre-Dame de Montréal. The classes were first opened in the fine building erected in St. Catherine Street, for the Nazareth Asylum. But, for about eight years, they have been transferred to a house, on the same lot, built especially for the purpose.

Mr. Rousselot brought the necessary books and instruments from Paris, to the study of which, a nun belonging to the General Hospital, devoted herself, and soon made herself acquainted with the different methods of reading, writing, and arithmetic.

She immediately commenced to instruct a young orphan girl, of whom she had charge, and as the pupil was very intelligent, her success was complete. Since then classes have been opened in which the nuns are perfecting themselves in teaching.

This institution has now thirty pupils, and the teaching which is given there, is not inferior to that of twenty-five or twenty-six similar institutions in the United States, where only one method of reading is followed. Here, they teach reading by gothic characters, and by points. The latter, according to Braille, is a french method. It has this great advantage over the others, that the blind can write to one another, and read what has been written.

Three modes of writing are taught: First, that of points, which we have mentioned. Each letter is represented by one or more raised points, which, according to their position indicate a character of the alphabet. 2nd. The ordinary writing of persons having the use of their eyes. It is done by pencil or ink, but a kind of groove is produced on the paper. 3rd. The third method requires a very ingenious preparation called "Mechanism of Faucornet." It consists of several bodkins, which, according to the way they are made to move, form characters of the alphabet. This writing, however, cannot be read by touch, and a blind person cannot avail himself of it, except in correspondence with people who have the use of their sight.

Mr. Rousselot imported a press from Paris—characters of Braille—which cost him $1,200. Several of his scholars studied the system and have succeeded very well. In future, the institute might print its own works.

Sister Denis has arranged, for her class, a chart of geography, and she is now occupied in making a terrestrial globe. On this, as on the other, the different parts of the world, with their mountains, plains, rivers, cities, are perfectly indicated, in a way which the children can, by touch, thoroughly learn and understand.

For arithmetic, they use tables divided into a great number of small cases, in which are placed figures of metal, which they use for addition, subtraction, &c.

Music plays a great part in all institutions of the blind. Children here are taught to read written music, which, I believe, is not done in the United States; the notes are raised, so that they can be read by touch.

Up to the present, Mr. Rousselot has only received $400 annual assistance from the government. We can understand what is due to him, when we consider what expenses he must have had in building, furnishing and supporting the sisters and pupils, as well as assisting them in other ways. His resources are exhausted, and it is time that the legislature came to aid him, in a more efficient manner, in a work which has for its aim the education of a class of children, so worthy of our sympathies, and a great number of whom have no other means of providing for their future. I hope then that during the next session, as great assistance as our means permit, will be granted to Mr. Rousselot, whose devotion has reached its furthest limits.

These unfortunate children are, in this institution, taught some simple trade. The boys learn to make seats of chairs with reeds, also brooms and other useful articles. The girls learn to sew, to knit, to make lace and other useful work of the kind.

SCHOOL OF SCIENCE APPLIED TO ARTS, OR POLYTECHNIC.

During the administration of my predecessor, arrangements were made with the commissioners of catholic schools in Montreal, to establish in their academy of Plateau, a school of science applied to arts and industries. At least, the necessary accommodation was furnished, and the commissioners have erected a large brick building, of several stories, for their elementary course.

They have procured all the necessary material, and have engaged the services of competent professors, in order to put the school on the best possible footing. As is seen by the report of the principal, Mr. Archambault, the programme includes all that constitutes a true polytechnic school.

The number of pupils, up to the present, has not been very large; but the suggestion made by Mr. Archambault, with the concurrence of the commissioners, to take gratuitously one pupil from each county, cannot fail to produce results. Each county ought to consider it an honor to assist in the instruction of one of its children, having the necessary abilities, and chosen by order of merit upon examination.

When we remember that we require to open a new horizon to our youth, and that we are preparing a great number of employments for them, we require competent men. In this age of railways, in which

every day, new industries arise wanting only competent men to develop them, everybody can understand the importance of a school like this, and the amount of good which it can do. Instead of being obliged to look to foreign countries to obtain men wellskilled in all the various branches of industry which includes numerous specialities, such men would then be found in our midst to the great advantage of our youth to whom are now open only those professions which are already too crowded.

It is certainly also a stimulus to the spirit of enterprise. When capitalists know that they can here find men for the execution of some branch of industry, upon whom they can rely, they will have less fear in using their capital in this way. Because it is certain that the idea alone, of placing themselves at the mercy of strangers, often hinders our capitalists from engaging in enterprises, by which the country might benefit.

Mr. Archambault, also makes some suggestions on the nomination of persons capable of supepintending the studies and examining the pupils. He considers also that it would be advantageous if the department conferred diplomas upon those who pass their examinations in a satisfactory manner.

These suggestions seem to be excellent, and I hope the government will adopt them.

POLYTECHNIC SCHOOL OF MONTREAL.

Montreal, September, 1875.

The Honourable Mr. de Boucherville, Minister of Public Instruction of the Province of Quebec.

Sir,

I have the honour to submit to you my report on the Polytechnic School of the city of Montreal, since its foundation in January 1874, until the 1st July 1875.

The agreement made in the month of November 1873, between the Hon. Mr. Gédéon Ouimet, and the commissioners of the roman catholic schools of the city of Montreal, for the formation of the Polytechnic School, as also the allowances made for the said school by the government of the Province, obliges me to give in this report an account both of the working of the school, and the progress of the studies, and a statement of the accounts; these two subjects form the natural divisions of this report.

1st The Working of the School and the Studies.

It was not until the month of January 1874 that the polytechnic school, attached to the catholic commercial academy of Montréal, was definitely constituted, and that the pupils commenced to attend regularly.

The course of instruction that the Commissioners of the catholic schools had founded required to be entirely changed, and the new list of studies resolved upon by the minister of public instruction, and the delegation at Quebec gave a definite form to the course of studies to be followed.

The first year of the school comprised only six months; from the 1st January to the 1st of July 1874. The new pupils were but little prepared for the studies, almost new to them, some were leaving classical colleges where they had learned the first elements of the sciences they would have to study, others coming from schools, ignorant of even the first elements, add to these the inseparable difficulties attending every new enterprise and you will have, Sir, an idea of the first troubles that the school had to overcome.

At the commencement of January 1874, ten pupils entered the school. Some of them during the first months acknowledged their want of ability for the exact sciences, and left. The others persevered and showed great willingness for the career which the Government had opened to their ambition; and the examination at the end of the year, on all the studies, which were made the object of instruction, shows clearly that the hopes, conceived, at the foundation of the school, were not in vain.

In fact, the following table of work accomplished, and the points which the scholars received, justified their hopes.

The basis, for judging of the excellence of each pupil, in each portion of his studies, was the same as that adopted in the scientific schools of France. Each question either in the oral or written examination, is represented by the number 10, and the number accorded to the pupil is given according to the value of his answer: the number 5 answering for passable.

Examination at the end of the year, June 1874.

Subjects.	Average of points obtained by pupils.	Fig. repr'ng the no. of the quest. and their value.
Geometry	184	280
Chemistry	128	200
Algebra	109	150
Natural Philosophy	129	200
Natural History	107	150
Arithmetic	62	80
General result	89	143

As I have mentioned above, half of the number 143, would have answered to passable, but the average greatly exceeded what might be called mediocrity, which would have been represented by the number 72 whereas the result was 89.

You will not forget that this first scholastic year, was of only six months duration, and was only preparatory to the regular instruction of the institution.

The school year 1874-75 ought, by the intention of the director, to give an exact measure of the working of the school. The era of difficulties was passed; the programme resolved on by the Minister of Public Instruction would be followed in all respects. The apparatus, instruments, scientific collections, were almost complete, and the school at last constituted.

In September 1874, the number of scholars was 12. Those of them who had formed the class of the preceding year, became the pupils of the second year; the new students according to their capacity formed the first year's class, except those who were only ready for the preparatory course.

You will remark, Sir, how the division of instruction has already increased the work. Certain classes became common to both years, while for other branches, they required two different courses; at the same time the outlay for the full strength of the programme was kept at 10 branches of instruction.

Very soon, the precious fruits, resulting from the care taken in the formation of the list of studies, became apparent. The pupils brought to their different studies, all the energy demanded, and it pleased me to notice, that some of them who had showed talent for some special studies the first year, in the second year showed it in still a more marked manner; and promised to become useful men in the industrial development of the Province.

By the examinations of the year in January 1875, you can judge of the work accomplished :

JANUARY 1875 ; STUDENTS OF THE SECOND YEAR.

Studies.	Average marks obtained by students.	Fig. exp'ing the no. of quest. and its excel.
Natural Philosophy.........	$62\frac{1}{4}$	100
Geometry.........................	77	115
Chemistry.........................	$65\frac{1}{2}$	100
Mechanics.........................	85	110
Economics.........................	36	50
Natural History............ ...	94	150
	$69\frac{8}{10}$	104

Course common to students of first and second year.

Trigonomotry...............................	85	100
Algebra	51_5	80
Architecture................................	57^6	70
Geology	82	100
Average...............	46	58

STUDENTS OF THE FIRST YEAR.

Subjects.	Average of the scholars.	Numbers.
Natural Philosophy...	152	180
Geography	48	50
Arithmetic........................	54	70
Geometry................	69	105
Chemistry........................	87	100
Natural History...............	90	100
Average...............	83	102

You cannot fail to remark what increase of work this division of the sciences into such numerous classes had caused. You see by the examination in the middle of the year, that twenty classes, or more than twenty courses, were formed for the students, giving as much work to the professors for a small number of students, as if the number had been much larger.

The examinations at the end of the year, in June 1875, have confirmed the progress which the preceding examination had manifested.

EXAMINATIONS AT THE END OF THE YEAR, JUNE 1875.

1874-1875.	Second Year.		First Year.	
SUBJECTS.	Number obtained by students.	Number of excellence.	Number obtained by students.	Number of Excellence.
Arithmetic	....	....	150	170
Algebra	124	180	125	180
Geometry	86	115	134	205
Geometry applied..	97	100	....	....
Geometry applied to design.	....	....	46	50
Descriptive Geometry	86	100	....	....
Trigonometry	93	100	84	100
Spherical Trigonometry.....................	88	100	76	100
Natural philosophy and meteorology.....	132	200	242	280
Mechanics	184	210	....	....
Cosmography	87	100	....	....
Chemistry	....	....	174	200
Analytical Chemistry.........	158	200	....	....
Geology	76	100	91	100
Mineralogy	85	100	....	....
Zoology and Botany	156	250	151	210
Geography..	....	....	82	100
Social economy	38	50	....	....
Architecture	145	170	145	170
Averages	$107\frac{2}{3}$	$138\frac{1}{3}$	133	155

Such is the result of the last examination undergone by the students of the school, on the nineteen different subjects of instruction. If you compare the three successive examinations since the formation of the school, you cannot but be astonished at the progress that has been made. At the examination in June 1874, at the end of the first year, the proportion of points obtained by the scholars, was $62\frac{1}{4}$ to 100, at the examination in January 1875, the proportion was 75 to 100, and in June 1875, 81 to 100.

These are the results, to which I am happy to draw your attention. They show that the application of the students did not lessen as their studies grew more advanced, but on the contrary, are an evident proof that the opportune formation of this school will be of great benefit to our youth.

I will add that the pupils of the school, have faced the trial of a public examination, and their answers principally on mathematics and science, gained the applause of an intelligent audience.

The advantages of professional instruction commence then to be appreciated by the canadian population ; and it is principally men who in beginning their career at the outset suffered from want of such technical knowledge, who are most anxious to obtain it for the young.

Thus, Mr. Prudent Beaudry, of a Montreal family, who has established himself not without the hope of returning to his native country, at Los Angelos, California, has placed in the hands of the commissioners, a sum of $2000 to form a perpetual sum of $150 per annum for the polytechnic school, to be employed for the maintenance of a young man, who according to the judgment of the Principal of the academy, has shown ability for the exact sciences, and who, from the want of this annual sum, would be deprived of attending the school.

You will feel with me, very great satisfaction in seeing that not only the intention of your predecessor, in forming the school, has answered the needs of the country, that also a noble emulation has been aroused among them, and that some have set apart a portion of their fortune obtained by hard work to insure to others the advantages which they themselves felt the need of.

The example of M. Prudent Beaudry is not the only one I have to tell you of.

Before closing this portion of my report on the polytechnic school, I must ask you, why an institution which answers so well to the wants of the Province, and the importance of which has been admitted by the government, has not been attended by a larger number of scholars?

With the staff of professors it has, and the scientific appliances, with which the government and the commissionners have enriched it, the school, without increase of the expenses could give instruction to a much larger number. On the part of the commissionners, no sacrifice will seem too great to obtain such a happy result, and I submit to your enlightened judgment the following proposition :

To give to each member of the House a right to admit to the polytechnic school of Montreal, a provincial institution, a young man from his county or electoral district, provided that he passes an examination on entrance, in accordance with the list of studies, and to follow his course in french, and this without any fee. Then the real advantages of professional instruction will be extended to the whole province, and the assistance of all who desire the industrial development of Lower Canada, would be gained for the school and it would then become a really national institution. The arrangements for this increase of scholars are all made, and the teaching of 50 pupils would not be more expensive than of 151. The pupils will gain in emulation, the professors also will find that a larger number will give them encouragement, and the Province, without increase of expense, will find also, a number of young men issuing from the school every year, well educated, and able to rank among the producers of new wealth.

The question as to the maintenance and keeping of these students from the counties in Montreal, will be quickly solved. The choice of the young man to represent the county would naturally fall upon the most meritorious one, and his admission to the school, after a severe examination, will justify any pecuniary sacrifice upon the part of his family, or in their default upon some generous persons, or the county would pay for him. There is too much patriotism in Lower Canada for this projet to fall through for want of support.

Another proposition seems to me to equally merit your attention. The great interest which your department has taken in the school, and the annual allowance which it receives from the Government, renders necessary the appointment of a special commission, which at the end of every year would examine the pupils. The school would gain in importance, and its studies in force, and the Government would know by the report of the commission, which pupils should be chosen for their ability and perseverance to execute government works or to fulfil positions where special knowledge is required.

Finally, Sir, the examination before the commission appointed each year, and composed of men selected on account of their special attainments would guarantee a sufficient amount of capacity in the successful student that the diploma granted to him at the termination of his studies, either as a civil engineer, surveyor, &c, should be granted by the minister of public instruction, and invest the holder with all the privileges, and advantages of an ordinary government diploma.

These are the propositions which I humbly submit to your consideration. You will not fail to see the proofs of my care and devotion to the school intrusted to me.

It only remains for me to place before you the tables of accounts of the school, and while accounting for the funds which the Government so generously allows us, to show that the commissioners of catholic schools have on their side treated the new institution with the greatest kindness, convinced that there will be great fruits derived from it in the future.

2. Accounts.

It is useless to repeat the terms of the past agreement in the name of the provincial government, between your honorable predecessor, Hon. G. Ouimet, and the commissioners of catholic schools, entered into on the 20th November, for the foundation of the Polytechnic school.

Three thousand dollars, taken from the funds accumulated for the formation of a school of science were allowed to the commissioners, to repay them the price of the instruments, and the laboratory just purchased or ordered by them, and an annual allowance of $3000 payable at the time of the distribution of the funds for superior education were made. Out of this annual allowance, one sixth at least must be kept for the maintenance of the school, the repairing of instruments and the purchasing of new instruments and scientific works; the balance is to be applied to the payment of the professors. The two tables annexed to this report with the accounts of 1873 to 1874 and 1874 to 1875, furnish you all the details, and justify the employment of the funds placed by the Government of the Province, conformably to the terms of the terms of the convention, at the disposal of the commissioners for the support of the school.

On examination of these accounts, you will observe that the generosity of the commissioners, enlarged in proportion to the hopes which they conceived. I will only add that the commissioners in addition to the sum mentioned in the table expended almost $4500 for the purchase of the grounds and the building, of which a part will be used as a hall of design and workshops for the school.

I have made this report, Sir, much more exhaustive than usual, but the newness of the undertaking and the interest which the Provincial Government has taken in the formation of the school, made it my duty to enter into all the details necessary to explain the working of the institution.

With much respect, I remain,

Your very humble servant.

E. U. ARCHAMBAULT.

Principal.

OFFICIAL DOCUMENTS

Apportionment *of the Supplementary Grant to poor school municipalities, for* 1876.

Counties	Municipalities	Amount Granted.
Argenteuil	Harrington, No. 2	$20 00
"	" No. 1	20 00
"	Arundel	20 00
"	Township Morin	20 00
"	" " diss	15 00
"	Grenville, No. 3	20 00
"	" No. 2, diss	20 00
"	St. André, diss	20 00
"	Gore	20 00
"	Mille Isles	20 00
Arthabaska	Ste. Clothilde	25 00
"	Blandford	25 00
"	Chester Ouest	25 00
"	" Est	25 00
"	" Nord	25 00
"	Tingwick, diss	20 00
"	St. Valère	20 00
"	St. Albert	25 00
"	St. Christophe	20 00
"	Victoriaville	20 00
L'Assomption	Ile Bouchard	20 00
Bonaventure	Miguasha	20 00
"	New-Richmond	20 00
"	Port Daniel, diss	20 00
"	Hope	20 00
"	Ristigouche	25 00
"	" Indian	40 00
"	Rustico	25 00
"	Hamilton	20 00
"	" diss	25 00
Bagot	Acton Vale	40 00
"	St. André	30 00
"	St. Théodore	30 00
"	Ste. Hélène	30 00
"	St. Liboire	30 00
"	St. Ephrem	30 00
Beauce	Shenley	25 00
"	Aylmer	25 00
"	Forsyth	25 00
"	Sacré Cœur de Jésus	25 00
Bellechasse	St. Cajetan	25 00
"	Buckland	25 00
"	Mailloux	25 00
Berthier	St. Michel des Saints	30 00
"	St. Damien	20 00
"	St. Gabriel, diss	20 00
Brome	Bolton, diss	30 00
"	Sulton, diss	30 00
Chicoutimi	Harvey	25 00
"	Grande Baie	25 00
"	Ste. Anne	25 00
"	St. Jérôme	25 00
"	Ouiatchouan	25 00
"	Anse St. Jean	25 00
"	Hébertville	25 00
"	Métabetchouan	25 00
"	Kinogami (St. Cyriac)	25 00
"	Chicoutimi Village	120 00
"	Bagotville Village	25 00
"	St. Gédéon de Grandmont	25 00
Chicoutimi	Jonquières	25 00
"	St. Prime	25 00
"	St. Félicien d'Ashuapmachouan	25 00
Compton	Westbury	30 00
"	Hereford	25 00
"	Marston	25 00
"	New-Port	25 00
"	Clifton	25 00
"	" East	25 00
"	St. Romain	25 00
"	Hampden	25 00
"	Ditton	25 00
"	Whitton	20 00
"	Compton	25 00
Charlevoix	St. Fidèle	20 00
"	Sethrington	20 00
"	Petite Rivière	20 00
"	St. Placie	25 00
"	Callières	20 00
"	St. Siméon	25 00
"	St. Agnès	20 00
"	DeSalles	25 00
Champlain	Ste. Flore	25 00
"	St. Luc	20 00
"	St. Tite	25 00
Chateaugnay	Ste. Malachie, diss	35 00
"	Howick, diss	30 00
Deux Montagnes	St. Columban	25 00
"	St. Canut, No. 1	25 00
Dorchester	St. Léon	25 00
"	St. Edouard	25 00
"	St. Malachie	20 00
"	Ste. Justine	35 00
"	Ste. Germaine	25 00
"	Cranbourne	20 00
"	" diss	20 00
"	Ste. Marguerite	25 00
Drummond	West Wickham	25 00
"	St. Germain	140 00
"	Wendover & Simpson	125 00
"	St. Fulgence, diss	25 00
"	Durham	25 00
Gaspé	Isle Bonaventure	20 00
"	Douglass	20 00
"	" diss	20 00
"	Barrachois	20 00
"	" diss	20 00
"	St. George de Masham	20 00
"	Pabos	20 00
"	Cloridorme	20 00
"	Haldimand	20 00
"	" diss	20 00
"	Anse à Valeau	20 00
"	Cap Dérosiers	20 00
"	Grande Vallée	20 00
"	Mont Louis	20 00
"	Grande Grève	20 00
"	Rivière au-Renard	20 00
"	Baie Nord	20 00
"	Roseville	20 00
"	Ste. Anne des Monts	20 00
"	Cap Désespoir	20 00
"	Percé	20 00
"	Cap-aux-Os.	20 00
"	York	20 00
"	Grande Rivière	30 00
Huntingdon	Hemmingford, diss	30 00
"	Huntingdon, diss	30 00
"	Havelock, diss	20 00

COUNTIES	MUNICIPALITIES	Amount granted.	COUNTIES	MUNICIPALITIES	Amount granted.
L'Islet	Ste. Louise	25 00	Ottawa	Lac Ste. Marie	25 00
"	Ste. Perpétue	30 00	Pontiac	Leslie	20 00
"	St. Cyrille	25 00	"	Chichester	30 00
"	Ashford	25 00	"	Sheen & Aberdeen	30 00
"	St. Pamphile	30 00	"	Calumets, diss	20 00
"	St. Eugène	25 00	"	Mansfield	30 00
Joliette	St. Ambroise, diss	20 00	"	Cawood	30 00
"	St. Emélie	25 00	"	Thorne	30 00
"	St. Côme	25 00	"	Calumet	20 00
"	Ste. Béatrix	25 00	Portneuf	St. Raymond	80 00
Kamouraska	Mont-Carmel	25 00	"	Ste. Catherine	45 00
"	St. Onézime	25 00	"	St. Ubalde	25 00
"	St. Eleuthère	30 00	"	Grondines, No. 2	20 00
"	St. Paschal	35 00	"	St. Alban	30 00
Lotbinière	St. Narcisse de Beaurivage	30 00	Québec	Tewkesbury, No. 1	25 00
"	St. Sévérin	25 00	"	St. Dunstan	20 00
"	St. Agapit	25 00	"	St. Gabriel Est, Valcartier	30 00
"	St. Gilles	25 00	"	Stoneham	25 00
Lévis	Lauzon Village	80 00	"	" diss	20 00
"	St. Etienne	30 00	"	St. Roch Sud	45 00
"	Bienville Village	40 00	"	" " diss	20 00
Laprairie	St. Constant, diss	20 00	"	Cap Rouge	50 00
Mégantic	Inverness, diss	30 00	"	St. Dunstan, diss	25 00
"	Leeds, diss	30 00	"	Tewkesbury, No. 2	20 00
"	Sacré Cœur	30 00	Rimouski	St. Anaclet	30 00
"	St. Ferdinand, diss	20 00	"	Ste. Angèle	30 00
"	Inverness West	25 00	"	Ste. Célile du Bic	40 00
Montmorency	Ste. Anne de Beaupré	35 00	"	St. Moïse	30 00
"	St. Tite	30 00	"	St. Gabriel	30 00
"	St. Adolphe	30 00	"	Ste. Félicité	30 00
"	Laval	25 00	"	Ste. Blondine	20 00
"	St. Féréol	30 00	"	St. Donat	20 00
"	St. Joachim	25 00	"	St. Ulric	20 00
"	Ste. Pétronille	40 00	"	Cherbourg	20 00
Maskinongé	St. Paulin	25 00	Richmond	Stokes	40 00
"	Hunterstown	25 00	"	Brompton, diss	40 00
"	Peterborough	25 00	"	Windsor, diss	30 00
"	Ste. Ursule, diss	20 00	"	Melbourne	30 00
"	St. Didace	25 00	"	Cheveland, diss	30 00
Missisquoi	St. Damien, diss	30 00	"	Shipton, diss	30 00
"	Dunham, diss	30 00	"	St. George de Windsor	30 00
"	Philipburg (St. Armand ouest)	35 00	Saguenay	Tadoussac	30 00
Brôme	East Farnham, diss	30 00	"	Escoumains	30 00
Montmagny	Grosse-Isle	30 00	"	Bourg Boissonnault	30 00
Montcalm	Chertsey	25 00	"	Sault-au-Cochon	20 00
"	Kilkenny	25 00	"	Mille-Vaches	20 00
"	Ste. Julienne	25 00	"	Petites-Bergeronnes	25 00
"	Wexford	30 00	"	Rivière-aux-Canards	25 00
Nicolet	Ste. Gertrude	25 00	"	Pointe-aux-Esquimaux	20 00
"	St. Léonard	30 00	Shefford	Ely Nord	70 00
"	Ste. Perpétue	30 00	"	Roxton	151 00
"	St. Vinceslas	30 00	"	Grandby, diss	30 00
"	Ste. Brigitte	30 00	"	" Village, diss	30 00
"	Ste. Marie	30 00	"	Ely Sud	72 00
"	St. Samuel	30 00	"	Ste. Pudentienne	30 00
"	Ste. Sophie de Lévrard	30 00	St. Maurice	St. Sévère	25 00
Ottawa	Ripon	30 00	"	Shawinigan	25 00
"	Montebello	30 00	"	Pointe-du-Lac	25 00
"	Eardly, diss	20 00	St. Jean	Lacolle	72 00
"	Waterloo Village	30 00	Stanstead	Hatley, diss	35 00
"	Wright & Northfield, diss	30 00	"	Coaticook	50 00
"	Bouchette	30 00	"	Barford	30 00
"	Lowe	30 00	Témiscouata	St. Antonin	20 00
"	Hartwell,	35 00	"	St. Modeste	20 00
"	Wakefield	30 00	"	St. Jean de Dieu	20 00
"	Cantley	35 00	"	St. François	30 00
"	Rivière Gatineau	30 00	"	St. Honoré	30 00
"	East Templeton, diss	20 00	"	Notre-Dame-du-Lac	20 00
"	St. Malachie	30 00	"	Ste.-Rose-du-Dégelé	30 00
"	N. D. de Laus	25 00	"	Notre-Dame-du-Portage	30 00

COUNTIES	MUNICIPALITIES	Amount granted
Témiscouata	St. Louis des Ha Ha	30 00
Terrebonne	St. Hypolite	35 00
"	St. Sauveur, diss	20 00
"	St. Adèle	30 00
"	Ste. Agathe	30 00
"	Ste. Marguerite	20 00
Wolfe	Garthby	25 00
"	Ham Nord	25 00
"	Ham Sud	25 00
"	St. Camille	20 00
"	Weedon	20 00
"	St. Gabriel Stratford	20 00
Yamaska	St. Bonaventure	20 00
	Total	$7960 00

Table of the Apportionment of the Grant in Aid of Superior Education to Catholic Institutions for the years 1875 and 1876, in virtue of the provisions of Chapter 15 of the Consolidated Statutes for Lower Canada.

List No. 1.—Classical Colleges

INSTITUTION	No. of pupils	Grant for 1875	Grant for 1876
		$	$
L'Assomption	224	1500	1500
Bourget (Rigault)	152	800	800
Chicontimi	90	1000	1500
Joliette	200	800	800
Nicolet	339	1500	1000
Ste. Anne Lapocatière	200	1637	2000
St. Germain	120	2000	2000
St. Hyacinthe	268	1500	1500
St. Laurent	410	800	800
Ste. Marie de Monnoir	207	700	500
Ste. Marie	325	1500	1500
Ste. Thérèse	237	1500	1500
Sorel	106	800	800
Trois-Rivières (Séminary)	210	2000	2000
		$18037	$18200

List No. 2.—Industrial Colleges

INSTITUTION	No. of pupils.	Grant for 1875	Grant for 1876
		$	$
Laval (St. Vincent de Paul)	112	250	200
Lévis	260	1197	1000
L'Islet	146	300	300
Longueuil	267	328	300
St. Césaire	256	300	300
Ste. Marie	134	300	300
St. Michel	96	300	200
St. Jérôme	215	200	250
Sherbrooke	80	1000	1200
Trois-Rivières	538	430	430
Varennes	140	254	200
Verchères	125	250	200
Science and art school	....	2500	2500
Total	....	$7409	$7380

List No. 3.—Mixed or male academies

INSTITUTION	No. of pupils	Grant for 1875	Grant for 1876
		$	$
Aylmer	97	192	192
Baie du Febvre	40	100	50
Baie St. Paul	106	142	140
Beauharnois	217	192	190
Belœil	72	150	100
Berthier en haut	72	285	200
Buckingham	90	250	250
Chambly	149	400	400
Dufresne, St. Thomas	70	223	140
Gentilly	57	50	50
St. Hyacinthe, Girouard	182	100	100
Kamouraska	82	200	150
Laprairie	118	250	250
Montréal, Commercial Academy	507	1000	500
Roxton Falls	56	112	112
Sorel	350	332	330
St. André	102	150	150
St. Columban de Sillery	91	223	200
St. Cyprien	115	100	100
St. Eustache	125	192	100
St. Grégoire	100	95	90
St. Joseph Pointe-aux-Trembles	85	150	150
St. Jean	259	400	400
St. Jean, Montmorency	108	128	100
St. Louis, Ecole Fleury	18	200	200
Ste Marthe, Vaudreuil	85	128	120
St. Michel, Vaudreuil	76	128	128
St. Romuald, West Farnham	232	170	170
St. Timothée	130	186	180
St. Thomas, Montmagny	198	212	212
Yamachiche	146	300	300
		$6740	$5754

List No. 4.—Female Academies

Institution	No. of pupils.	Grant for 1875	Grant for 1876
			$
Baie St. Paul	160	97	97
Beloeil	109	89	89
Berthier (en haut)	141	96	96
Boucherville	144	89	89
Cacouna	95	143	143
Les Cèdres	95	89	89
Chambly	191	129	129
Châteauguay	100	89	89
Huntingdon	75	73	100
Isle Verte	74	113	100
Kamouraska	80	130	100
Lachine	297	178	178
Laprairie	170	89	89
L'Assomption	185	115	110
Lévis (Notre-Dame)	280	102	100
L'Islet	70	115	110
Longueuil	305	256	250
Longue Pointe	44	64	64
Pointe-aux-Trembles, Hochelaga	115	150	150
Pointe-aux-Trembles, Portneuf	125	150	150
Pointe-Claire	130	75	75
Rivière Ouelle	106	100	100
Sherbrooke	437	256	256
Sorel	531	296	296
St. Aimé	200	97	97
St. Ambroise	100	89	89
Ste. Anne de la Pérade	189	100	100
St. Benoit (Hospice Youville)	90	100	100
St. Césaire	143	100	100
St. Charles Borromée	345	170	170
St. Clément	218	128	120
Ste. Croix	103	128	120
St. Cyprien	169	89	89
St. Denis (Academy)	220	100	80
St. Denis	139	89	89
Ste. Elizabeth	130	150	150
St. Eustache	140	94	94
Ste. Famille	63	90	90
Ste. Geneviève	120	128	128
St. Germain	215	194	194
St. Grégoire	212	194	194
St. Henri de Mascouche	127	89	89
St. Hilaire	101	89	89
St. Hyacinthe (Sœurs de la Présentation)	223	115	115
St. Hyacinthe (Hôtel-Dieu)	385	115	115
St. Hugues	86	150	150
St. Jacques de l'Achigan	192	170	170
St. Jean	500	194	194
St. Joseph	360	200	200
St. Laurent	175	170	170
St. Lin	172	89	89
Ste. Marie	150	270	270
Ste. Marie de Monnoir	173	128	128
St. Martin	100	73	70
St. Michel	125	150	150
St. Nicholas	96	89	89
St. Paul de l'Industrie	74	89	89
Ste. Scholastique	130	150	150
Ste. Thérèse	160	89	89
St. Thomas	230	194	190
St. Thimothée	100	114	100
Terrebonne	177	89	89
Trois-Pistoles	106	113	100
Trois-Rivières (Ursulines)	362	194	194
Varennes	100	100	80
Vaudreuil	100	89	89
Yamachiche	135	128	100
		$8563	$8902

List No. 5.—Model School.

Institution	No. of pupils.	Grant for 1875	Grant for 1876
		$	$
Acton Vale, convent	295	138	138
Acton Vale	119	50	50
Arthabaskaville	135	233	250
Aylmer, convent	184	138	150
L'Assomption	154	50	50
Anse au Gascon, Port Daniel	70	50	50
Bagotville	98	56	56
Baie du Febvre, convent	163	73	73
Beaumont	84	73	73
Beauport	142	73	73
Bécancourt	75	114	114
Berthier	98	73	73
Boucherville	115	73	73
Buckingham, convent	70	73	73
Cacouna	65	56	56
Cap St. Ignace	100	60	60
Cap Santé	38	73	73
Cap Rouge, boys	57	100	100
Cap Rouge, girls	61	75	75
Carleton	62	100	100
Carleton, convent	51	150	150
Champlain, village, boys	60	73	73
Champlain, convent	72	73	73
Charlesbourg, boys	86	56	56
Charlesbourg, girls	52	56	56
Chateau Richer, boys	72	73	73
Chateau Richer, boys	110	51	51
Chicoutimi, convent	65	100	100
Coaticook, convent	205	100	100
Côtes des Neiges	106	73	73
Côte des Neiges, convent	120	56	56
Coteau St. Louis	312	73	73
Deschambault, boys	82	100	100
Deschambault, convent	83	73	73
Eboulements	60	73	73
Escoumains	92	73	73
Etchemin, village, convent	250	100	100
Fraserville, do do	122	73	73
Fraserville, do	87	73	73
Gentilly, convent	93	130	150
Grande Baie, boys	45	73	73
Grande Baie, girs	55	56	56
Grande Rivière	56	73	73
Grantham	71	73	73
Grondines, No. 2	81	56	56
Hébertville	30	100	100
Hemmingford, convent	55	73	73
Hereford, convent	60	80	80
Lachine, boys	150	73	73
Lacolle	145	73	73
Lauzon, village	268	141	141
Longue Pointe	32	73	73
Lorette, Indian School, boys	20	162	162
Lorette, do girls	24	162	162
Malbaie	65	73	73
Maria	50	73	73
Matane	98	56	56
Marianites, sœurs de Ste. Croix	149	100	100
Montreal, école St. Jacques, convent	685	712	712
Montreal, maitrise St. Pierre	154	188	188
Montreal, catholics commissioners	354	889	889
Montebello, convent	188	138	138
Nelson	40	50	50
Nicolet, convent	273	56	56
Notre-Dame de Hull, No. 1	160	50	50
Notre-Dame de Hull, No. 2	145	50	50
Notre-Dame de toutes Grâces de Hull, girls	100	73	73
		$7136	$7183

List No. 5.—Model School (continued)

Institution	No. of pupils	Grant for 1875	Grant for 1876
		$7136	$7185
Notre-Dame de Laterrière	70	60	100
Notre-Dame du Portage	53	56	56
Nouvelle, St. Jean l'Evangeliste	21	100	100
Percé	70	56	56
Pointe-aux-Trembles	71	71	60
Pointe Claire	50	73	70
Pointe du Lac	85	73	73
Portneuf, boys	110	56	56
Portneuf, girls	85	56	56
Quebec, œuvre du patronage	137	150	150
Quebec, catholics commissioners	1210	286	286
Quebec, St. John suburb	104	73	73
Quebec, société d'éducation	475	944	944
Rawdon	55	50	50
Rawdon, convent	52	50	50
Rigaud, convent	40	73	73
Rivière du Loup	106	100	100
Rivière Ouelle	59	56	56
Stanfold	43	56	56
St. Agapit	68	56	56
Ste. Agathe No. 2	80	50	50
Ste. Agnès	48	56	56
St. Aimé	160	200	200
St. Alexandre	103	73	73
St. Alexandre, convent	134	56	56
St. Ambroise	41	40	40
St. André	54	56	73
Ste. Angèle de Merici	61	56	56
St. Anicet, boys	58	56	56
Ste. Anne de Beaupré, convent	50	56	56
Ste. Anne de Bellevue, girls	80	56	56
Ste. Anne de Bellevue, boys	78	73	73
Ste. Anne	88	56	56
Ste. Anne des Monts	55	80	80
Ste. Anne des Plaines	110	73	73
Ste. Anne la Pérade	114	151	151
Ste. Anne Lapocatière, convent	130	188	188
St. Anselme, convent	120	73	73
St. Athanase, convent	201	56	56
St. Antoine de Tilly	104	56	76
St. Appollinaire	80	73	73
St. Arsène	80	73	73
St. Augustin	35	60	50
St. Barthélemi	79	73	60
Ste. Brigide	76	56	56
St. Bruno	82	60	60
St. Calixte de Somerset, G.	36	150	100
St Calixte de Somerset, convent	94	100	140
Ste. Catherine	17	50	50
Ste. Cécile du Bic	84	56	56
Ste. Cécile, boys	225	73	73
Ste. Cécile, girls	249	130	130
St. Célestin, convent	87	100	100
St. Charles, girls, Bellechasse	62	56	56
St. Charles, St. Hyacinthe	126	70	100
Ste. Claire	138	150	150
St. Columban de Sillery, convent	227	188	188
St. Christophe, convent	153	183	183
St. Constant	90	97	97
St. Cuthbert	52	80	80
St. David	141	56	50
St. Denis, Kamouraska	60	73	73
St. Denis, No. 1, St. Hyacinthe	88	73	73
St. Edouard	102	73	73
Ste. Elizabeth	66	73	73
St. Fabien	88	50	50
Ste. Famille	59	56	56
St. Hermas	53	72	72
		$13596	$13699

List No. 5.—Model School (continued)

Institution	No. of pupils	Grant for 1875	Grant for 1876
		$13596	$13699
St. Felix de Valois	98	56	56
Ste. Flavie	65	73	73
Ste. Foye	134	73	70
St. François, village	123	56	50
St. François, parish	122	56	56
St. François-Xavier	80	72	72
St. François, Rivière du Sud C.	28	142	142
St. François, Indian School	119	56	56
St. Gabriel de Brandon, convent	72	56	56
St. Gabriel	102	73	73
Ste. Geneviève de Batiscan	62	56	56
Ste. Geneviève	84	73	73
St. George de Henryville	144	56	56
St. George de Henryville, convent	30	73	60
Ste. Gertrude	44	73	60
St. Gervais	60	73	73
St. Gervais, convent	40	70	70
St. George	40	75	75
St. Grégoire le Grand	58	56	
Ste. Helène, K.	906	56	56
St. Henri, convent	304	73	73
St. Henri, boys	104	100	75
St. Henri	70	73	70
St. Henri de Mascouche	75	100	
St. Hilaire	56	70	70
St. Hubert	57	56	56
St. Hubert, convent	125	56	56
St. Ignace, Côteau du Lac	56	73	73
St. Ignace, convent	60	56	
St. Irénée	51	73	73
St. Isidore	72	73	70
St. Jacques le Mineur	112	97	97
St. Jean-Baptiste	384	140	140
St. Jean des Ecureuils	110	56	56
St. Jean, salle d'asile	250	100	100
St. Jean Chrysostôme	208	100	100
St. Jean Chrysostôme, Lévis	35	56	56
St. Jean Deschaillons	75	73	73
St. Jean Port Joli, boys	55	56	56
St. Jean Port Joli, girls	50	56	56
St. Jérôme, convent	207	100	100
St. Joachim, D. M.	81	73	73
St. Joachim, C.	60	56	56
St. Joachim, M.	82	60	60
St. Joseph, B.	33	73	60
St. Joseph de S.	35	73	73
Ste. Julie de Somerset	35	56	56
St. Lambert	76	100	125
St. Laurent	98	73	73
St. Léon	54	56	56
St. Liguori, convent	122	138	138
St. Lin	120	56	56
St. Louis de Gonzague	120	56	56
St. Louis de Gonzague, convent	120	56	56
St. Louis	36	73	73
St. Louis, girls	80	73	73
St. Luc		56	
Ste. Luce	90	56	56
St. Marc	17	73	
Ste. Marguerite, l'Acadie	80	73	73
St. Martin	90	73	73
Ste. Martine, girls	66	56	
Ste. Martine, boys	75	56	56
St. Mathias	76	56	56
St. Maurice	68	73	73
Ste. Mélanie	104	73	73
St. Michel, convent	98	90	90
		$18414	$18066

LIST No. 5.—MODEL SCHOOL (continued)

INSTITUTION	No. of pupils	Grant for 1875	Grant for 1876
		$18414	$18060
St. Michel, boys	36	56	56
Ste. Monique	75	73	73
St. Narcisse	133	73	73
St. Nicolas	73	73	73
St. Norbert	65	73	73
St Octave, Métis	79	70	70
St. Ours, convent	155	100	100
St. Ours, boys	96	73	73
St. Paschal	108	73	73
St. Paulin, convent	68	59	50
St. Philippe	64	73	
Ste. Philomène	45	56	
St. Pierre les Becquets	35	56	
St. Pierre de Broughton	62	56	56
St. Pierre de Durham	70	56	56
St. Pierre	76	56	56
St. Pierre de Charlesbourg, convent	112	100	100
St. Placide	100	56	
St. Polycarpe, convent	140	100	100
St. Polycarpe, boys	65	100	100
St. Rémi, convent	164	70	70
St. Roch l'Achigan, boys	109	73	73
St. Roch l'Achigan, convent	112	130	130
St. Roch des Aulnets, girls	30	56	56
St. Romuald de West Farnham	276	70	70
St. Romuald	70	73	73
Ste. Rosalie	60	100	100
Ste. Rose	100	73	73
St. Sauveur, convent	473	100	100
St. Sauveur, maison Maria Joseph	465	158	158
Ste. Scholastique	102	150	150
St. Sévère	75	73	73
St. Stanislas	111	73	73
St. Stanislas Kostka	118	73	73
St. Sylvestre, convent	117	70	70
St. Thomas de Pierreville	90	128	128
Ste. Ursule, convent	55	56	56
Ste. Ursule	86	56	56
St. Urbain		56	56
St. Valentin	80	100	100
St. Valier, girls	54	73	73
St. Vincent de Paul	52	56	
St. Vincent de Paul, convent	140	73	73
St. Zotique	110	100	60
Sault-au-Recollet	80	56	56
Shawinigan	82	56	58
Sherrington, St. Patrice	85	89	89
Trois Pistoles	77	73	73
Trois-Rivières, girls	120	100	100
Victoriaville	30	56	
Waterloo	104	100	100
Waterloo, village	110	72	72
Waterloo village, convent	160	73	100
Wotton, convent	40	100	140
		$22652	$21980

ADDITIONEL SUPPLY

Collège de Levis	....	....	200
Ecole du Patronage	....	....	50
Comres Cath : de Quebec	....	....	200
" " de Hull	....	....	127
Collège de Varennes	....	....	54
" de Ste. Marie de Mannoir	....	....	200
Couvent de St. Athanase	....	....	44
" de St. Germain de Rimouski	....	....	106
" de Sherbrooke	....	....	44
Collège industriel de St. Jérôme	....	....	50
Couvent de St. Paulin	....	....	50
" de Deschambault	....	....	50
			$1175

NEW APPLICANTS

INSTITUTION	No. of pupils	Grant for 1876
		$
Ancienne Lorette	60	56
Côte St. Paul	180	56
Lanoraie, convent	175	73
Leclercville	76	56
Maniwaki Notre-Dame du désert	195	73
St. Anicet, convent	89	56
St. Bonaventure d'Hamilton	46	73
Ste. Cécile de Masham	45	60
St. Charles Lachenaie	75	56
St. Cuthbert, convent	53	56
Ste Emilie	84	56
St. Ferdinand d'Halifax, convent	73	126
St. François du Lac, commercial academy	56	56
St. Jean Baptiste	73	56
Lanoraie, académie	118	73
St. Raphaël	107	73
Sœurs du Bon Pasteurs de Québec	50	50
Sœurs de Charité de Québec	56	50
La Congrégation, St. Roch de Québec	697	50
Quebec drawing and arts school		1000
		$2205

TABLE of the Apportionment of the Grant in aid of Superior Education to Protestant Institutions for the years 1875 and 1876, in virtue of the provisions of Chapter 15 of the Consolidated Statutes for Lower Canada.

LIST No. 1.—UNIVERSITIES

INSTITUTION	No. of pupils	Grant for 1875	Grant for 1876
		$ cts.	$ cts.
McGill College	....	1369 49	1369 49
Contingent expenses	....	271 00	271 00
Bishop's College	100	979 18	979 18
			$2619 67

LIST No. 2.—CLASSICAL COLLEGES

		$ cts.	$ cts.
High School, Montreal	344	1185 00	1185 00
High School, Québec	113	1285 00	1285 00
Morrin	88	369 98	369 98
Stanstead	183	405 00	405 00
St. François	85	587 66	587 66
			$3832 64

LIST No. 3.—INDUSTRIAL COLLEGES

		$ cts.	$ cts.
Lachute	156	184 19	184 19
		184 19	184 19

List No. 4.—Mixed or male Academies

Institution	No. of pupils.	Grant for 1875	Grant for 1876
		$ cts.	$ cts.
Adamsville, East Farnham	33	86 00	86 00
Aylmer	34	....	129 52
Barnston	54	86 35	86 35
Bedford	116	90 06	90 06
Charleston	55	173 92	173 92
Clarenceville	56	170 82	170 82
Clarendon	65	86 35	86 35
Coaticook	175	75 91	75 91
Compton	45	86 35	86 35
Cookshire	53	86 35	86 35
Cowansville, girls	76	131 98	131 98
Cowansville	50	86 95	86 95
Danville	157	129 52	129 52
Dudswell	18	40 00	
Dunham	135	170 00	170 00
Eaton	36	145 66	145 66
Freligsburg	34	114 07	114 07
Georgeville	38	56 00	
Granby	143	170 83	170 83
Huntingdon	125	291 00	291 00
Knowlton	45	170 83	170 83
Lacolle	164	100 00	100 00
Mansonville	47	100 00	100 00
Philipsburg	....	88 14	....
St. Andrew's	42	86 00	86 00
Ste. Foye	38	86 35	86 35
St. Jean	75	150 00	150 00
Sherbrooke	95	189 00	189 00
Sorel	14	76 49	76 49
Stanbridge	57	100 00	100 00
Sutton	35	86 00	86 00
Shefford	125	100 00	100 00
		$3610 93	$3556 31

List No. 5.—Model School

		$ cts.	$ cts.
Berthier en haut	60	60 00	60 00
Bury	....	45 05	
Coteau Landing	44	34 57	34 57
Durham	85	61 76	61 76
Lachine	88	60 00	60 00
LaPeche	68		56 00
Leeds	64	45 05	45 05
Magog	128	145 05	145 05
Maple grove, Ireland	52	50 00	50 00
Montreal Colonial Church School Society	750	384 80	384 80
Marbleton	....	50 00	50 00
Notre-Dame de Hull	298	100 00	100 00
Quebec Infants School, uppertown	....	96 23	96 23
Quebec British Canadian School Society	197	421 78	421 78
Quebec National School	180	213 99	213 99
Rawdon	....	45 05	
St. Dunstan	32	73 00	73 00
St. Etienne de Chelsea	117	45 05	45 05
St. Henri	66	45 05	45 05
Sherbrooke Colonial and Continental School Society	118	96 86	96 86
Trois-Rivières	69	80 00	80 00
Valleyfield	85	73 06	73 00
		$2226 29	$2192 19

New applicants

Compton, girls	$ 30	$100
Grenville, academy	18	70
Chambly	58	50
Total	....	$250

OFFICIAL NOTICES.



Ministry of Public Instruction.

DIPLOMAS GRANTED BY BOARDS OF EXAMINERS.

MONTREAL (CATHOLIC BOARD).

Model School, 1st *class* (F): Miss Esther Leriger de la Plante, Mr. Henri Vaillancourt; (E & F) Marguerite Quesnel.—2d *class* (F): Miss Almaïde Tétrault.

Elementary School, 1st *class* (F): Misses Th. Beauchamp, Emma Benoit, Léontine Brun, Marie Fredette, Cléophée Leblanc, Anne Melançon, Adina Ménard, Marie Robert, Caroline Soucis, M. Hormisdas Ladouceur; (E & F) Miss Emma Beaudoin; (E) Miss Theresa Kelly.—2d *class* (F): Misses Tanaïle Filion, Angélique Laberge, Mèlina Messier.

1st February, 1876.

Model School, 1st *class* (F): Messrs. Edmond Deraedt, George St. Jacques; (E & F) Miss Henriette Langlois.—2d *class* (F): Misses Anysie Beaudry, Hortense Bellerose, Azilda Cartier, Eugénie Foucrault.

Elementary School, 1st *class* (F): Misses Malvina Barré, Emma Barré, Mélina Bourque, Azilda Bordia, Hermunie Bourgeault, Marie Bock, Azélie Brissette, Olivine Cardain, Eliza Charbonneau, Lucie Courtois, Mrs. Constantin born R. Brazeau; Misses Eugénie Comeau, Délima Cyr, Délima Desroches, Delphine Depetteau, M. Louise Dupuis, Rose Dupuis, Mélina Ethier, Philomène Gladu, Mathilde Hamelin, Sophie Hébert, Cornélie Hébert, Graziella Huet dit Duludé, Olivine Ladouceur, Mathilde Labelle, Marie Valentine Lafrance, Léontine Lavallée, Alphonsine Leclaire, Eliza Leroux, Zéphirine Legault, Amanda Levasseur, Malvina Maheu, Ellen Monakey, Guilhelmine Ouimet, Azilda Palin, Délima Paquet, Malvina Perodeau, Délima Picard, Denise Pigeon, Salomée Poirier, Edwidge Proulx, Philomène Quintin, Julie Roch, Azilda Surprenant, Sophie Thauvette, M. Alexis Deschênes, Dame Mathilde Leroux (Derouin), (E): Misses Mary Cain, Briget Drew, Ellen McGrail, M. George Waters, (E & F): Miss Annie Donnelly.—2d *class* (F): Misses Clotilde Beauchamp, Emma Bricault, Alphonsine Chaperon, Dorimène Comtois, Léa Cloutier, Agnès Forget, Mathilde Guay, Priscille Hardy, Zéphirine Legault, Agnès Legault, Cécile Primeau, Adèle Picard, M. Pierre Demarteau.

2d, 3rd and 4th May, 1876. F. X. Valade, Secretary.

MONTREAL (PROTESTANT BOARD).

Elementary School, 1st *class* (E): Misses Nancy Jameson, Margaret McDougall, Martha McWilliams.—2d *class* (E): Misses Susan R. McGregor, Kate Wheeler, Sarah Wheeler.

16th February, 1876. T. A. Gibson, Secretary.

THREE-RIVERS.

Model School, 1st *class* (F): Miss Dina Lacourse.

Elementary School, 1st *class* (F): Misses Agnès Gélinas, Marie Zéphise Lacerte, Elise Garceau, Octavie Benoit, Annie Lesage, Rose Délima Lefebvre, Delia Gagnon.—2d *class* (F): Misses Olivine Baril, Marie Caron, Athanaïs Trottier, Marie Deshayes.

1st February, 1876. Ephrem Dufresne, Secretary.

QUEBEC (CATHOLIC BOARD).

Model School, 2d *class* (F): Miss Exilda Cantin.

Elementary School, 1st *class* (F): Misses Louise Boilard, M. Héloise Boilard, M. Emérise Drapeau, Rosalie Gagnon and M. Sophie Trudel.—2d *class* (F): Misses M. Mathilde De Varennes, Emélie Gagnon, M. Odile Gingras, M. Stella Pelletier, M. Emma Perrault and M. Oliva Ratté; 1st *class* (E & F): Misses M. Célina Ratté and M. Louise Mélanie Rhéaume; 1st *class* (E & 2de F): M. Joseph Hargadon and Miss Mary-Jane Finn; 1st *class* (E & 2d F): Miss M. Philomème Dion; et 2d (E) Miss M. Joséphine Demers.

1st February, 1876. N. Lacasse, Secretary.

DRUMMOND, RICHMOND AND WOLFE.

Elementary School, 1st *class* (F): Miss Léonide Labonté.—2d *class* (F): Misses Philomène Alain, Célanie Allard, Célina Desaulniers, Hanora Crow.

Danville, May 1876. F. A. Brien, Secretary.

AYLMER.

MODEL SCHOOL, 1st *class* (F): Misses Mary Doherty, Kattie Knok, Emma O'Reilly.

Aylmer, 1st February 1876. JOHN WOOD, Secretary.

SHERBROOKE.

MODEL SCHOOL, 1st *class* (E): Misses Alice Fuller, Elisabeth Pallister.

ELEMENTARY SCHOOL, 1st *class* (E): Misses Alecia Ann Berry, Annie Gray, Keziah Mountain, Ann Jane Murray, Mary Ann Mitchell, Margaret Nutbrown.—2d *class* (E): Misses Edith Hurd, Maggie Diack, Sueller E. Emery, Caroline Handright, Louise P. Thompson.

2nd May 1876. S. A. HURD, Secretary.

MISCELLANY.

The Relation of Battles to Storms.—It has been observed for many centuries that storms, or meteorological changes of a striking nature, occur during or at the close of great battles. Whether these results are to be regarded as coincidences, or as the sequence of physical disturbances in the atmosphere, is a question not decisively settled. Of the fact that storms do occur in close connection with battles there is no doubt. During the late war in this country, hardly an action of any magnitude took place, which was not accompanied with wind and rain. The operations on the Peninsula under McClellan were apparently productive of continuous rains, and in the great fights around Richmond and Petersburg, meteorological disturbances occurred which at times seriously impeded military operations. So, too, abroad. The loss of the great battle of Solferino was attributed by the Austrian commander to a terrific thunder-storm which burst over the field and obscured the movements of powerful masses of the enemy. The decisive battle of Sadowa, which closed the Austrio-Prussian war in 1866, was in like manner accompanied by a violent storm. Napoleon was heard to remark, that so certain was he of causing rain by the explosions of his artillery during battles, that he disposed his troops in a way to take advantage of clouds when formed.

No reasonable objection can be urged against the theory that great explosions, producing violent concussions in the air, may change its hygrometric conditions and cause condensation of moisture. Besides the disruptive effects produced in a great battle, there is the evolution of much heat, from the combustion of gunpowder and from the massing together of large bodies of men. Altogether, it is not difficult to find satisfactory causes for sudden meteorological changes during great battles, and therefore wind and rain are not to be regarded as simply coincident with active proceedings in war. It may be urged that our national anniversary, the Fourth of July, is usually clear, notwithstanding the vast amounts of gunpowder burned in all parts of the country. This does not, however, meet the case; the explosions occur all over the country, and are comparatively upon a small scale. There is not usually a decided concentration of noise at any one point. If this occurs, a shower is pretty certain to take place. Last year the day was particularly noisy in Eastern Massachusetts, and in the afternoon the most violent thunder-storm of the season burst over that section of country. The question is one of much interest to meteorologists, and is worthy of more careful consideration than it has received.

—(From the *Boston Journal of Chemistry*.)

Good manners.—'Tis a rule of manners to avoid exaggerations. A lady loses as soon as she admires too easily and too much. In man or woman the face and the person lose power when they are on the strain to express admiration. A man makes his inferiors his superiors by heat. Why need you, who are not a gossip, talk as a gossip, and tell eagerly what the neighbors or the journals say? State your opinion without apology. The attitude is the main point, assuring your companion that, come good news or come bad, you remain in your good heart and mind, which is the best news that you can possibly communicate. Self-control is the rule. You have in you there a noisy, sensual savage, which you are to keep down, and turn all his strength to beauty. For example, what a seneschal and detective is laughter! It seems to require several generations of education to train a squeaking or a shouting habit out of a man. Sometimes, when in almost all expressions the Choctaw and the slave has been worked out of him, a coarse nature still betrays itself in his contemptible squeals of joy. The great gain is, not to shine, not to conquer your companion - then you learn nothing but conceit—but to find a companion who knows what you do not; to tilt with him and be overthrown, horse and foot, with utter destruction of all your logic and learning, there is a defeat that is useful. Then you see the real and the counterfeit, and will never accept the counterfeits again. You will adopt the art of war that has defeated you. You will ride the battle horse on the very logic which you found irresistible. You will accept the fertile truth instead of the solemn customary lie. When people come to see us, we foolishly prattle, lest we be inhospitable. But things said for conversation are chalk eggs. Don't say things. What you are stands over yon the while, and thunders so that you cannot hear what you say to the contrary. A lady of my acquaintance said: "I don't care so much for what they say as I do for what makes them say it." The law of the table is beauty—a respect to the common soul of all the guests. Everything is unseasonable that is private to two or three or any portion of the company. Tact never violates this law; never intrudes the order of the house, the vices of the absent or a tariff of expenses, or professional privacies; as we say, we never "talk shop" before company. Lovers abstain from caresses, and haters from insults whilst they sit in one parlour with common friends. Would we codify the laws that should reign in the households, and whose daily transgression annoys and mortifies us, and degrades our household life—we must learn to adorn every day with sacrifices. Good manners are made up of foreign sacrifices.—*Ralph Waldo Emerson.*

Going Down Hill.—Each of us occupies a certain moral platform from which we regard the world at large, and upon which we erect a standard of judgment. Some are higher, some lower, but no one ever deliberately intends to descend from his own to an inferior plane. Still these sad descents are sometimes made, and so gradual and insidious are the steps that we are hardly conscious of them till we come to compare our present with our former selves. The young man in a position of trust, for instance, looks down with horror upon fraud, dishonour, forgery and robbery. He would far sooner give up every hope of happiness, and even life itself, than sink to such a depth of degradation. But in some unguarded moment temptation arises, and in some trifling matter he blunts his fine sense of honor. Immediately his guardian angel *Shame* comes to protect him from further downfall—not the shame of being lowered in the world's opinion, for no eye may have witnessed it, but that of being no longer able to reverence himself. If he now receive the warning with humble penitence he may be saved, but, if he thrust it from him as an unwelcome intruder, he has already taken one step in the downward road. He now occupies an inferior moral platform; he is reconciled to a lower code of honour, contented with a poorer grade of virtue. It is, alas! only too easy to predict his continued descent. Gradually he loses sight of his former position, taking lower and lower stands, the blush each time growing fainter on his cheek, till at length he reaches those depths of deceit and infamy from the very thought of whhich he once shrank with abhorrence.

The Temple at Jerusalem.—It is probably no exaggeration to say that more has been written regarding the Temple at Jerusalem than in respect to any other building in the known world, and unfortunately, it may be added, more that is wild and utterly untenable. This last peculiarity arises from several causes. First, because all the earlier restorers were entirely ignorant of the ground on which the Temple stood, and of the local circumstances that governed its construction; it was not, indeed, till the spot was surveyed by the late Mr. Catherwood in 1833, and his plan published on a sufficient scale in 1862, that restorers had such a map of the ground as would enable them to adjust their measurements to the locality with anything like certainty. Though that plan was wonderfully perfect, considering the circumstances under which it was made, it has since been superseded by that made under the direction of Captain (now Major) Wilson, R. E., in 1864-2, which leaves nothing to be desired in this respect. It can be depended upon almost to inches, and has been engraved on a scale sufficiently large for all topographical, if not quite for all architectural, purposes. A second cause of the wildness of the restorations hitherto attempted is that the Temple at Jerusalem was quite unique. Not only had the Jews only this one temple, but, so far as we know, it was entirely of their own invention and utterly unlike the temples of any of the nations around them. It certainly, at all events, was quite unlike the temples of the Egyptians or Greeks. It may have had affinities with those of the Babylonians or Assyrians; but, notwithstanding all that has been done of late years, we know so very little of what the temples of Mesopotamia were that these hardly help us even at this day, and the assumption that this might be so was of no use whatever to earlier restorers. Having thus no analogies to guide them, and as it is literally and absolutely true that not one stone remains on another of the Temple, properly so called, it is not to be wondered at that early restorers failed to realize the truth and indulged in fancies which were utterly untenable. In nine cases out of ten their object was to produce a building which would be worthy Solomon in all his glory, rather than a sober reproduction of the very moderate building described in the Bible.—*Contemporary Review.*

ABSTRACT FOR THE MONTH OF APRIL, 1876.

OF TRI-HOURLY METEOROLOGICAL OBSERVATIONS TAKEN AT McGILL COLLEGE OBSERVATORY. HEIGHT ABOVE SEA LEVEL, 187 FEET.

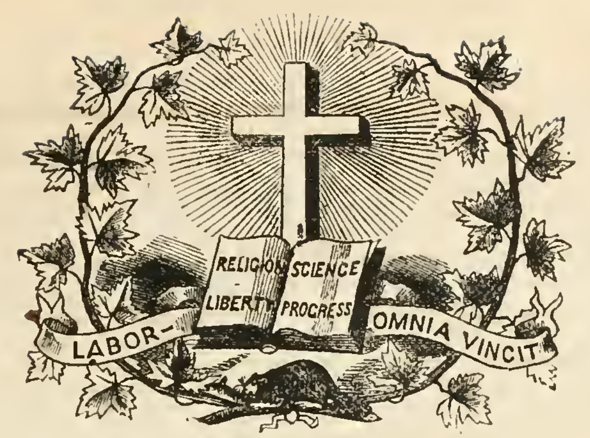
Day.	Thermometer.				° Barometer.				†Mean Pressure of Vapour.	‡ Mean Relative Humidity.	Wind.		Sky Clouded in Tenths			° Rain and Snow Melted.	Day.
	Mean.	Max.	Min.	Range.	Mean.	° Max.	° Min.	Range.			General direction	Mean Velocity in m. p. hour.	Mean.	Max..	Min.		
1	23.04	41.6	25.0	16.6	30.1935	30.388	30.001	.387	.1212	69.2	N. W.	10.5	6.5	10	0	0.06	1
Sunday 2		42.0	25.2	16.8							N. W.	9.3					2 Sunday
3	32.49	40.7	23.6	17.1	30.0481	30.208	29.888	.320	.1226	67.1		7.9	6.6	10	0		3
4	32.84	34.1	29.8	4.3	29.8742	29.959	29.803	.156	.1821	97.5	E.	11.3	10.0	10	10	0.53	4
5	35.29	40.9	28.9	12.0	29.8734	29.990	29.755	.235	.1720	83.7	E.	9.4	9.4	10	7	0.08	5
6	36.86	39.4	35.0	4.4	29.7512	29.833	29.711	.122	.1444	66 1	S. W.	19.4	10.0	10	10		6
7	34.89	37.6	32.6	5.0	29.7084	29.802	29.622	.180	.1691	83.7		12.1	10.0	10	10	0.32	7
8	26.52	33.5	21.4	12.1	29 9595	30.048	29.832	.216	.0902	62.2	N. W.	16.5	6.0	10	0		8
Sunday 9		39.1	17.0	22.1							W.	17.4					9 Sunday
10	35.16	44.0	28.2	15.8	30.0430	30 079	30.992	.084	.1316	64 7	W.	14.4	3.9	10	0		10
11	43.20	50.2	34.8	15 4	30.0565	30.093	29.995	.098	.1545	54 9	W.	10.3	2.0	9	0		11
12	44.04	52.6	33.9	18.7	29 9222	30.033	29.941	.096	.1454	50.4		4.1	0.6	2	0		12
13	42.91	54.2	28.9	25.3	29.7282	29.925	29.528	.397	.2117	74.0	S. E.	9.5	6.4	10	0	0.03	13
14	39.21	48.0	35.9	12.1	29.4625	29.537	29.343	.194	.2225	92.9	S.	12.5	10.0	10	10	0.20?	14
15	38.74	43.0	35.8	7.2	29.4667	29.576	29.414	.162	.1639	67.4	S. W.	20.1	7.5	10	1		15
Sunday 16		45.2	33.6	11.7							S. W.	11.4				0 08	16 Sunday
17	35.42	39.8	32.7	7.1	29.7381	29.099	29.592	.307	.1629	78.9	S. W.	13.7	9.0	10	2	Inapp.	17
18	35.76	41.1	31.0	10.1	29.9955	30.073	29.900	.173	.1435	69.1	W.	9.2	9.2	10	4		18
19	38.42	46.7	31.9	14.8	30.1244	30.153	30.061	.092	.1359	58.7	W.	11.6	3.9	10	0		19
20	41.39	50.9	32.3	18.6	30.1008	30.195	29.992	.633	.1361	52.7	W.	13.3	5.0	10	0		20
21	37.66	43 4	32.8	10.6	29.8659	29.998	29.785	.213	.1897	84.7		8.7	8.9	10	1	0.20	21
22	43.81	55.2	36.2	19.0	30.0336	30.069	30.007	.062	.1904	68 5	W.	4.6	8.0	10	2	0.02	22
Sunday 23		51.8	35.3	16.5								6.8					23 Sunday
24	43.14	50.0	33.9	16.1	30.1526	30.195	30.089	.106	.1366	49.7	N. E.	6.2	2.4	8	0		24
25	42.51	53.7	30.9	22.8	30.1810	30.217	30.155	.062	.1554	56.9	N. E.	5.2	4.4	10	0		25
26	44.67	53.1	31.9	21.2	30.1466	30.224	30.073	.151	.1416	49.4	N. E.	5.1	0.9	2	0		26
27	44.14	56.8	32.1	24.7	30.0401	30.113	29.966	.147	.1344	48.6	N. E.	5.1	1.0	2	0		27
28	39.45	46.1	31.1	15.0	29.7017	29.927	29.527	.400	.2026	81.4		9.8	6.5	10	0	0.43	28
29	39.72	49.0	32.9	16.1	29.7887	29.863	29.716	.147	.1564	65.5	W.	13.4	4.6	10	0	0.19	29
Sunday 30		41.1	33.0	11.1							N. W.	8.7				0.09	30
Means......	38.412	45.59	30.91	14.68	29.9207			.1894	.1567	68.0		10.58	6.1				

Barometer readings reduced to sea-level and temperature of 32° Fahr. † Pressure of vapor in inches mercury. ‡ Humidity relative saturation, 100. Observed. Ten inches of snow is taken as esqual to one inch of water.

Mean temperature of month, 38.41. Mean of maxima and minima temperature, 38.25. Greatest heat was 55.2 on the 22nd; greatest cold was 17.0 below zero on the 9th,—giving a range of temperature for the month of 38.2 degrees. Greatest range of the thermometer in one day was 25.3, on the 13th; least range was 4.4 degrees on the 6th. Mean range for the month was 14.7 degrees. Mean height of the barometer was 29.9207. Highest reading was 30.388 on the 1st; lowest reading was 29.343, on the 14th—giving a range of 1.045 inches. Mean elastic force of vapor in the atmosphere was equal to .1567 inches of mercury. Mean relative humidity was 68.0 Maximum relative humidity was 100 on the 4th. Minimum relative humidity was 29. on the 27th. Mean velocity of the wind was 10.6 miles per hour; Greatest mileage in one hour was 27 on the 9th. Mean direction of the wind, West. Mean of sky clouded was 61 per cent.

Rain fell on 10 days. Snow fell on 7 days Rain or snow fell on 13 days. Rainfall, 1.03 inches. Snowfall 12.0 inches. Total precipitation in inches of water was 2.23.

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On the Practical Teaching of Experimental Physics in Schools. (*)

In recent times so many important additions have been made to our knowledge of Heat and Electricity, that a new impulse has been given to the study of Physics, to original research in it, and to the old controversy how far and in what manner the teaching of Experimental Physi s can or should be made an inseparable portion of a system of National Education. Those who take a professional interest in any branch of Physics, and make its pursuit or its teaching the business of their lives, urge the claims of Physics to be placed on an equal footing with Writing, Reading, and Arithmetic, as an educational subject, principally upon two grounds. First, they maintain that Physics holds the foremost position as a means of developing the various functions of the human intellect ; in other words, of best furthering the ultimate aims of general education. Attention, memory, judgment, imagination, are alike roused, brightened, and sharpened by an early individual acquaintance with natural phenomena. In proof of this, they point to the history of philosophy and the literature of all civilised nations. On every page which preserves the teaching of the ancient Greek philosophers, and of the great thinkers of succeeding times, we find physical phenomena taken as starting points, or used as illustrations of profound metaphysical doctrines ; and the very downfall of philosophical systems coincides exactly with the times when the onward progress of physical sciences showed the Physics of the ancients to be either altogether wrong, or their facts wrongly interpreted. But the greatest support for this recommendation of Physics is derived from the fact, that no kind of human knowledge is so intimately connected with our earliest experiences. The very growth of the faculties of a child depends on physical phenomena. As soon as its eyes are opened it is a physical observer, and soon although unconsciously, becomes a physical experimenter, the range of its experiments constantly extending as the child grows. Each moment in the very earliest life adds to the clearness of the primary conceptions, which are at first confused and incorrect. The child soon learns to distinguish between solid and liquid, between hot and cold bodies, between light and darkness. The ear at the same time lays in a store of experiences on sound. The years of boyhood enrich the amount of physical knowledge immensely, and by a thousand instances, each of which is nothing else but a physical experiment, the boy becomes acquainted with a vast range of physical facts. He experiments on the weight, hardness, rigidity of bodies ; on the rebound of a marble or a cricket-ball, on the motion of bodies projected in different ways ; he learns music, or is delighted with the echo of the mountains or forest ; he makes experiments on reflection and refraction of light ; observes colours, studies the the effect of a burning glass, plays with small magnets, and rubs sealing-wax on other bodies to observe electrical attraction. These experiences possess, of course, no inherent connection : the boy *sees* merely, he does not think, or think erroneously, but there is stored up in this manner a vast material, even in the dullest mind, on which to work, so as to bring out our highest faculties. In not one of the sciences which have the study of a natural phenomena for its object, stands the teacher upon so well prepared a ground for the purpose of education—a ground which only requires conscientious labour to bring forth the best and most valuable of fruits.

(*) Paper read by B. Loewy, Esquire, before the College of Preceptors.

But it is also urged upon another ground, of a more

utilitarian character, that Physics—and here I must include Chemistry—should form widespread subjects of education. The present century has seen discoveries in Physics which have not only exerted a most decisive and favourable influence upon our whole culture, but which have led to so great and novel general principles in Physics that those who are best able to judge of the range of these principles express an opinion that we are only at the beginning of a great era of still more astounding discoveries. That facts and principles of so vast promise and importance should, by means of the various channels of national education, become the common possession of all classes, has very naturally been the most anxious desire not only of distinguished men of science, but also of enlightened statesmen over the civilised world ; for it is seen at once that a sound knowledge of these facts and principles would most probably stir up mankind to make new exertions for discovering still unknown realms of science.

It is only just to say, that these claims of Physics to be one of the recognised subjects of education, have not been utterly disregarded in this country. The number of science schools where Physics form a prominent subject, of science teachers, and of youthful students, is undoubtedly, although very slowly, increasing; and something is done by Government and by private support to advance physical research. But has the teaching of Physics so far really fulfilled the expectations and promises of those to whose opinions I have briefly alluded ? It is far too early to answer this question ; but if the value of the knowledge of Physics imparted in our schools is to be judged from the published results of different examinations carried on for the purpose of testing the amount of general education attained by the candidates, we should arrive at a most disheartening conviction. The average number of pupils who present themselves in Experimental Physics at this College is never more than between 4 and 5 per cent, of the total number of pupils examined at each examination ; but a worse feature in the case is, that out of 100 pupils who take up Physics, only three or four give accurate answers to some of the proposed questions ; 20 or 30 per cent, give answers bearing in a very vague manner on the question. The remainder are mostly totally unacquainted with the subject. Glance again at this result as a whole, and it comes to this, that out of 1500 boys and girls only about three are able to give a correct answer to a few simple questions about natural phenomena which can be observed and experimented on every day, in every place, and should be so studied in every school. At the London University the number of failures in "Natural Philosophy" is a striking feature in the Matriculation examination, being usually as much as the failures in three other subjects taken together, and nearly always greater than the number of failures in any other subject. At this examination the number of questions set to the candidates has recently been swelled to sixteen ; and if, as I understand, correct answers to two, or at most three, of these sixteen questions qualify a candidate to pass, the expectations of the examiners have sunk very low indeed.

Now if we admit that physics is a subject of great importance from an educational as well as a material point of view—and no one will probably be prepared to deny this presumption—the time has clearly arrived when teachers should without delay ascertain the present state of physical science teaching, investigate the causes of such strikingly unsatisfactory results as I have sketched in the few instances that have come within my knowledge, make further inquiries whether there exist other facts connected with the question of a more hopeful nature, and mutually exchange their experiences ; and it is only in the light of a communication to you of my own personal experience as a teacher of Experimental Physics that I wish you to consider the following remarks and suggestions on the subject.

There are at present three different methods of teaching Physics principally in use. The first of these consists in purely oral instruction. The teacher states some physical fact, and elicits perhaps by his questions some illustrations of the fact from the individual experience and recollections of his pupils. As a mere mental exercise nothing could be said against this method, which, however, is equally applicable to history, geography, or in fact any kind of knowledge. But a fact in Physics differs in this precisely from all other facts, that our own senses supply the only evidence for its truth. It follows that the chief aim of the teaching of Physics must naturally be solely to train our senses so as to perceive the facts, and then to show how to separate the accidental from the essential, to connect effects with their causes, and thus to see not only the truth in a single fact, but the agreement of many facts in one definite principle, and so to lead the mind to the recognition of that one principle, or law of nature, which embraces all the solitary facts. No mere description of physical facts would ever make a discoverer ; indeed, it is well known that a method of learning something about physical facts has at all times produced considerable harm. The class of projectors and sham inventors is principally recruited from mere readers of books on Physics ; their conclusions are derived from erroneous ideas about facts which they have never really seen, and are naturally of a kind to vanish in the air when put to the test of actual experiment. A method of teaching physics without the basis of experiment stands thus really in direct contradiction with its essential purpose. As a matter of fact such a mode of teaching is utterly tedious to learners ; it must lead to errors and misunderstandings ; and moreover it is extremely limited in its range, because many facts and phenomena are quite beyond all comprehension, unless they are perceived by the senses. It appears from the examination papers which are presented to me from time to time at this College, that such a method is unfortunately still pursued in many schools ; the confusion produced in the mind of the pupils of these schools manifests itself in every statement, and stand in remarkable contrast with the clear and truthful answers given by those few who have obviously seen what they describe. Written examinations are not a very high test of knowledge attained ; but they prove something, and, as matters are, we are bound to accept what they prove.

A second method consists in oral instruction by lectures, illustrated by experiments performed by the teacher before the whole class. At first sight this seems to be an irreproachable method, and undoubtedly it is the best and only one by means of which some information on physical phenomena can be conveyed to large audiences. Nor seems there any other way of exhibiting before a body of students or educated people some result of recent discovery, or giving them a connected exposition of some great principle, with the leading steps or precursory experiments that have prepared its adoption or established its power. But I fail altogether to see its advantage as a school method. We do not teach writing, reading, or arithmetic, by confining ourselves to writing letters or sentences on a black-board, or by reading the alphabet or a page out of

a book before our classes, or by showing how a sum in arithmetic is done. We do all these things; but our pupils learn how to write and read, and so on, only by repeating over and over again for themselves what the teacher has shown. The tediousness of the lecturing process before a class of boys or girls is notorious; and in a lecture on Physics especially, as every conscientious teacher will admit who has ever attempted such a lecture, the natural vivacity and curiosity of youthful minds directs their whole attention so much to the apparatus displayed on the table, and finally to the experiment, that the verbal instruction is only very partially listened to; and I have over and over convinced myself that the instruction is taken as a kind of bitter pill, and the experiment as its coating of jam. It is undoubtedly true, that by performing one or two experiments illustrative of some principle, and by indefatigable questioning and cross-questioning, knowledge of that principle may be ineradicably established in half the members of a class; but the other half, through want of attention, seems utterly incapable of learning anything about the subject, and gradually, more and more, the work of the teacher fails to effect uniform progress. We might disregard this want of complete success if our aim in teaching Physics were nothing else but to demonstrate and impress upon our pupils a certain number of physical facts or laws; but surely it is far more than mere pieces of knowledge which we are anxious to give to our boys and girls during their schools years. We wish to train their senses of their intellects, we endeavor to guide and direct their powers of volition to the right ends, and we are working for this—that their emotional and moral life may be in accordance with the highest possible standard. How can we possibly proceed with a greater certainty of success in such a work than by bringing our youthful charges face to face with nature itself? Let them arouse for themselves those forces which man has discovered and uses for his benefit. Let each of them learn to put questions to nature in a proper manner, calculated to receive answers; show them how to read these answers for themselves; let them put answer to answer, and thus learn from nature itself what no human lips can ever teach so well.

This can, in my opinion, only be accomplished by a method of teaching altogether different from those two which I have briefly sketched. There is a third method of teaching Physics in use, especially at Universities, a modification of which seems to me particularly suited for elementary instruction. Anybody who desires to become thoroughly acquainted with some branch of Physics or of Chemistry, or in fact any of the other branches of the Natural Sciences, either from an individual inclination for and interest in the subject, or for some special definite professional purpose, does not trust to the reading of books, nor does he depend on mere lecture courses with illustrative experiments. He considers books and lectures as useful adjuncts to his studies, but he essentially trusts to the individual practical work which he may be enabled to do under the guidance of experienced teachers. He devotes a considerable time, often three or four years, to regular work in a laboratory, where he learns how to observe, how to measure, how to compute his results, and how to deduce physical facts from his work. It is not our object to make our pupils in schools physical experimenters, no more than we aim at making a writing master, or a public reader, or a professor of mathematics, of every child to whom we teach writing, reading, and arithmetic. The fact proves that practical work is considered to be the only real method of obtaining the knowledge desired; and experience shows abundantly that men who have done a certain amount of practical work in physical or chemical laboratories will stand above every mere book student, however wide his range of treating any problem not of science alone, but of life itself. He who has ever done practical science work in a genuine scientific manner will, in my opinion, be a different and a more useful man than the most profound scientific library hermit. That so great advantages should be rendered available also to those who make their first elementary steps in acquiring knowledge, has been the wish of every earnest teacher: but unfortunately it has, so far, generally been considered that there are many serious obstacles in the way of introducing in our public and private schools systematic practical work to be done by the pupils there. I propose to show how these difficulties may be diminished or entirely overcome, and for this purpose it may be best to describe, as far as possible on an occasion like the present, the system of teaching Experimental Physics, and related branches of the Experimental Sciences, which has been adopted, and is more worked out and perfected at the London International College since the beginning of 1873.

Although differences of considerable weight in devising a plan of teaching must naturally exist in the scope of education, and many other circumstances between this College and other private or public schools and educational establishments, still many points of agreement present themselves, especially in respect of the teaching of Physics; and I shall speak more of pupils having a certain average age than as being members of a definite class or form, so as to exclude at once a striking feature of dissimilarity.

Let us then begin our work with pupils who have reached the age of ten, and who can fairly read, write, and do a simple sum in arithmetic. Now is the time to rouse their attention to the existence of an infinite variety of beautiful forms, of periodic events, of great movements around us; and to show that it is not only worth our while to observe, but that there must be method in every observation, and that such observations lead to general conclusions of great importance. Ten, eleven—these are the years for Botany, Zoology, and Physical Geography, where, from the smallest, to the grandest scale on which Nature works, the most striking examples should be selected and displayed or pointed out by the teacher. Physical experiment is here not essential, but a beginning should be made to illustrate some great principle, and I shall here at once indicate the general way of superintending and arranging the experiments. An hour, say in every month, being specially appointed for experiments in the youngest class, let me suppose that you wish to illustrate the following three facts bearing on Physical Geography and Botany: 1st, the solvent action of water, the dependence of this action on temperature, and on the nature of the substance dissolved; 2nd, the spherical form assumed by a liquid when withdrawn from the action of external forces; 3rd, the effect of endosmose on two liquids of different density separated by a membrane. These three sets of experiments may precede or follow that stage in Physical Geography where the action of rivers or springs, or the figure of the earth, and in Botany where the ascent of sap in plants, is under consideration. Or the experiments may form some physical exercises quite by themselves, and merely used for reference. The plan for working now suggested is the same for boys of all ages; with this difference, that after the age of twelve

experiments are made constantly during every hour devoted to the subject. Divide your class into groups of two at most, and after assigning to each a definite place for working, provide each group with an independent experiment by placing in their hands slips of paper on which definite but short directions for its performance are given. Let each boy copy out your directions for the experiment he has to do in a small note book with pencil, and at the end of his copy make out for himself a list of the things required for it. Your directions are, out of school hours, again to be copied out fairly with ink into a special book, and a little sketch of the arrangement of the experiment is to be added, however unsightly at first the illustration may be turned out. If possible, let each boy answer at the end of his fair copy, in his own words, this question: What had I to show by this experiment? While the boys are copying out their directions, make a list, in a special book, of the names of the boys in each group, with the number of the experiment supplied to each. As each group has to perform each experiment, such a list is absolutely required for a systematic teaching. To prevent all unnecessary questioning and loss of time after the experiment is written out, place your whole store of glasses, tubing, and in fact everything necessary for work, so as to be readily and freely accessible to the boys. Next, whenever any single question is asked as to the name of a utensil, or where it is to be found—and a storm of such questions is sure to roar around you as soon as experiments are written out for the first time, all pupils being mostly under the same difficulty—answer each question as if coming from the whole class. Take them all round, show them where everything is kept, state the name of each object—and, for example, what you mean by a tube ¼ of an inch wide or ½ of an inch wide, or a flask capable of holding 2 oz., 3 oz., etc., or water, or a small beaker-glass, a middle-sized, or a large one; and declare at the same time that each boy has to carry himself every piece of apparatus required to his place, with the exception of chemicals, to which, for obvious reasons, access should not be allowed to boys at all, unless they are of more advanced age, and their character for carefulness is well established. All chemicals should be carried from the place where they are kept and restored again under the immediate superintendence of the teacher; but with this exception he should reserve his whole attention to the close observation of each group. The utmost vigilance will be required; he must be constanly moving about, and have his eyes everywhere, directing the attention of each group to their work, to the precautions to be observed in order to avoid failure, to casual explanations in order to extend the views of his pupils, and especially holding constantly before each worker the definite fact which his experiment is to prove. Each group should, for that purpose, be kept away from every other as far as possible. Every school-room can be very readily converted into an experimental workroom. The seats and flat tables, or rough planking placed across inclined school desks, the floor even, may be utilized by the scattered groups of workers. As soon as each group has completed the experiment assigned to it, it is to report itself to the teacher, who at once inspects their place, directs the removal and cleansing of the utensils used, and supplies another experiment.

Let me now use the three sets of facts previously mentioned to give a few examples of the directions to be given. These should be as follows for the different experiments to be made by each group successively.

Experiment 1.—Before you are two bottles containing clear water, marked 1 and 2. Pour out a little from No. 1, about a ¼ of a small test-tubeful, into a small porcelain dish, and heat it over the lamp until it is boiled away. Place the dish aside and near you. Take another dish, pour in water from bottle No. 2, and heat it as before. When all the water is boiled away, inspect the two dishes. The first dish is quite clean, but the water from bottle 2 left a white substance behind. Thus water may be as clear as perfectly pure water, and yet contain substances which are dissolved in it.

Experiment 2.—Pour a little water from the bottle marked No. 1 into a small china dish, and heat it until the water is boiled away. Inspect the dish. There is nothing left behind in it. Pour now some of the same water into a small beaker glass, and drop a little lime into it. Stir the water gently, and filter it through a funnel into another beaker glass. The water runs through the filter perfectly clear. Pour a little of this clear water into a china dish and boil it away. There will be white lime left behind. Thus pure water dissolves lime when it comes in contact with it.

The directions to a few more experiments, which every teacher can easily formulate for himself, would now show how to dissolve any two *different* salts in equal quantities of water so as to discover differences of solubility, to dissolve a given substance in cold water to saturation, and to add then more of the substance to this saturated solution to cool until crystals are deposited, to distil pure water from a solution of a salt, and finally to allow of the slow evaporation of any solution until all the water has disappeared and the solid in solution is deposited. We should thus employ six or seven groups with experiments, each of which leads to an important independant fact, while the performance of the whole set must establish in the mind of the pupil a clear conception of a great principle, and of the various steps by which it is obtained, while the concurrent individual instruction of the teacher leads to a comprehension of its importance and bearing. For the two experiments on the globular form of liquids and on endosmose, the directions would be as follows. For the former: Fill a small beaker glass first with water and then with alcohol, and mix both liquids together by stirring them in a large beaker glass. Take up with the end of a pipette a small drop of oil from the bottle by closing the upper end with the thumb and bring the end of the tube into the middle of the liquid. See if the drop of oil remains in the middle. If it sinks, add a very little water until the drop floats in the liquid: if it rises, add a little alcohol. When the small drop neithes rises nor sinks suck up some more oil by the pipette, close the upper end, and immerse its lower end to about the middle of the mixture. Allow the oil to escape, and a globe of oil will be produced. Liquids have thus a tendency to assume a definite form, namely, that of a sphere.

Again, for the experiment on endosmose: Dissolve as much sugar as you can in a small beaker-glass half filled with hot water, until the solution is thick and syrupy. Take a glass tube 6 inches long, or a test-tube of which the bottom is broken, and tie a piece of thin bladder over the mouth of it. Fix the tube into a retort stand, and immerse the closed end of the tube two inches deep in water contained in a beaker. Pour the solution of sugar through the open end into the tube until it stands inside on a level with the water outside. Taste the water around the tube: it tastes like pure water. Leave the arrangement to stand until the next day. You will then find that the liquid in the tube has risen, and the water outside will have a sweetish taste. Thus the thinner liquid, the water, passes into the tube, and the thicker fluid, the syrup, passes out of it;

moreover, the thinner liquid passes more rapidly through the membrane than the thicker, for the liquid in the tube stands at a higher level.

These few examples of the experimental directions will be quite sufficient for my purpose. They show that every teacher need only range through our physical text books to find ample store of facts, which, with very little exertion, may be prepared for class use as so many simple experiments to be performed by the pupils

I will now presume that the class of beginners ripens to the age of twelve, and is promoted to a higher class. Regular practical work in Experimental Physics, and also in Chemistry, should now begin, and not end until the boy leaves school. The reading and learning of text-books should be reduced to a minimum, and made purely auxiliary to the practical work. Lecturing, if considered at all necessary, should be confined to a certain range of physical facts, in which it is perhaps still an open question whether they are not more adapted for being exhibited and explained before a larger audience than for being more closely studied by the individual; for example, certain phenomena of light, sound, and especially the various grander effects of electricity. But if we wish fairly to try whether Experimental Physics will have that powerful influence on our individual culture which some of its results have had on modern civilisation and the very aspect of human society, then we must make the trial in an honest and truthful spirit, and truth resides only in the experiments. Having already given all the more important indications of the detail of the experimental school method, I proceed to state the broad principles which should form the basis of such experimental teaching in all classes of a school.

First then, each teacher who feels inclined to adopt some such method as I propose should first of all learn carefully to perform for himself a number of simple physical experiments which he has selected from various sources. He should write out his own directions; these will afterwards serve for his pupils. He should also most assiduously think out *everything* that can be learned from each particular experiment, and never place any experiment in the hands of a pupil unless he is capable himself, from actual experience, to perform it with neatness and certainty. His stock of experimental experience may be small in the beginning, but it will grow with wonderful rapidity as he will be pushed forwards to unceasing activity by his classes constantly eager for new experiments.

Next, the experiments to be performed with boys from twelve to fourteen years old, say during a year or two, should be selected so as to range only over fundamental facts of Physics. Taking the following headings of these fundamental facts in a portion of Experimental Physics, and assuming that each pupil performs one or two well-selected experiments under each heading, he will have gained a clear idea what particular physical facts are classified under these headings, and have learned something about the definitions, technical terms, and range of Physics. These headings are, for Light, Heat, Magnetism, and Electricity, the following:

Light.—Formation of Shadows—Reflection by plane and spherical mirrors—Refraction—Lenses—Dispersion The Spectrum—The Microscope—The Telescope—Binocular Vision.

Heat.—Expansion—The graduation of the Thermometer.—Melting and Freezing—Convection—Ebullition —Evaporation—Condensation of Vapour—Tension of Vapour—Radiation—Conduction—Latent Heat—Specific Heat.

Magnetism.—Magnetisation—Induction—Effects of Terrestrial Magnetism.

Electricity.—Attraction and Repulsion—Conductors and Non-conductors—Induction—The Electroscope—The Electrophorus—The production of a Galvanic Current—Effects of a Galvanic Current—Action of Currents upon each other—Induction of Currents.

The experiments under each head should be selected for their simplicity; the most simple experiment is at this stage of learning generally the most instructive and intelligible. In many cases the pupils may be directed to construct for themselves, with inexpensive materials, important experimental apparatus. Nevertheless, a small stock of necessary things to start with will be required in each school. The current expenditure involved in experimental teaching should be provided for in the same manner as the expenditure of boys for books, stationery, &c.

One great aim in experimental class-work should be that the pupils may early arrive at a conviction of the uniformity of the effects produced in the universe by the same causes acting under the same surrounding circumstances. For this purpose it might appear requisite to conclude most experiments with a laborious computation, of which the result is some physical numerical constant. The close agreement of such constants, as derived from independent sets of experiments, convinces naturally of the uniformity of the connection in nature between cause and effect. But in school experiments an attempt to arrive at constants end invariably either in entire failure, or in the necessity of devoting a considerable time to each of the experiments. Hence we should proceed in this case on a different plan. One or two examples will show better what I mean. Let me suppose that an experiment is made on the specific heat of mercury in the following manner: —A pound of mercury at some high temperature, which we observe, is thrown into a pound of water at a lower temperature. We observe the temperature of the mixture as soon as the rise of temperature ceases, and by thus knowing how much heat the mercury has given up to the water we may easily calculate the specific heat of mercury. If we compare our result with the number which represents this physical constant, the specific heat of mercury, we shall find ourselves far from the truth, for reasons which cannot be so completely explained to beginners as to satisfy them. Similarly, suppose we were to pass some steam from a flask which contains boiling water into a bottle containing cold water, then the temperature of this water will rise, and by certain simple principles we may from our experiment proceed to calculate the latent heat of steam. But our result will considerably differ from the truth, and the results of your pupils, which should be compared with one another from time to time, will not at all agree with one another, and this produces an unsatisfactory impression of doubt and uncertainty in them. But if each of your pupils weighs out his water and his mercury in the first experiment with the utmost exactitude in the same vessels, if the temperature of the water is made to be exactly the same by each, and also the mercury has in every experiment been heated to that temperature which you gave in your written directions to each experimenter, and if the mixture is made in the same bottle by all successively, you will find that nearly the whole class will obtain the same result. Similarly, if in the second experiment the temperature of the water which receives the steam and its quantity at starting is for all experimenters prescribed, it will be found that in every experiment, provided the same vessels are used throughout, a definite quantity of steam condensed produces a definite rise of temperature in the receiving vessel.

The same principle holds good in every kind of class experiments. Avoid unnecessary discrepancies by a uniform method of working, carefully considered beforehand and attentively carried out. The agreement of the results thus obtained by a whole class fills each member of it with indescribable delight, with a steadily growing confidence in and renewed longing for experimental study, and a sense of the importance of his work. On the other hand, the uniform discrepancy of these results from the truth allows you an opportunity of indicating in general terms to the whole class the sources of error, which are avoided in more delicately conducted experiments, and which in their case produced collectively a *uniform* deviation from the correct result.

The present moment, when a great exhibition of scientific instruments, containing the best educational apparatus for the teaching of Physics used amongst the most advanced nations may be seen in this city, and studied and examined by teachers for months to come, appears to me particularly fortunate and opportune for urging upon you, speaking as a teacher to teachers, the necessity of not resting until Experimental Physics has assumed amongst the recognised subjects of national education that position which is due to it, and which it will undoubtedly assume when it is taught and learnt by sounder methods than those hitherto pursued.

—*Educational Times.*

SCHOOL EXAMINATIONS.

Conferring of Degrees to Successful Competitors at William Molson Hall, 8 June.

A large number of scholars of the various High Schools and of persons interested in educational matters congregated in William Molson Hall to witness or take part in the announcement of the result of the examination of candidates from the high schools for the degree of B.A., conferred by McGill College upon scholars capable of successfully undergoing examination before a Board of Examiners appointed by the College authorities.

The Hon. Mr. Ferrier occupied the chair and there were also present Andrew Robertson, Q. C., Governor, the Rev. Dr. Murray, the Rev. Principal Lobley, Dr. Aspinwall Howe, Professor Markgraff, Mr. Murray, B.A., Oxf., W. C. Baynes, B.A., Secretary, Mr. Fawcett, M.A., Prof. J. A. McGregor, M.A., and others.

After prayers had been said,

Principal Dawson briefly announced the object for which the meeting of scholars and others had been called together. He reviewed the efforts the University had made in past years in the cause of education. The examinations of pupils candidates for degrees was commenced in 1867, and continued for six years, when they ceased for two years altogether, commencing again last year. During the time that had elapsed since the commencement, 73 scholars in all had proved successful, and in that exhibit was much that was congratulatory to the efforts of teachers in various schools. He announced that it is the intention of the authorities of the university to allow ladies to compete next year, and was certain that the step would be a highly beneficial one. So far, some scholars from the country academies and schools had entered, many of them being successful, but with the publicity that had been given throughout the country districts, it was very certain that next year a greater number of scholars would enrol themselves from the country schools. He had the greatest confidence in the examinations, and was certain that this department of university work would go on increasing in prosperity, and necessarily in usefulness. In the United States, Upper Canada and England, the necessity did not exist for these examinations, owing to the system of education in vogue in those countries; but in Lower Canada the case was different, and all that could be done was necessary to promote the usefulness of the schools. Under the new law, however, matters might improve with the introduction of the system proposed. Principal Dawson then proceeded to say that of the 16 candidates who presented themselves, 12 had passed. Of this number, 6 were from the High School of Montreal, 3 from the Proprietary School, 2 from Bræside, 1 from the Dunn Academy and 1 from the country. In conclusion, he commented on the highest number being from the High School, which should not be surprising from the fact that it was a very long established school, and the possessor of advantages in many other respects, over schools started recently. Alluding to the young gentleman from the country, who had passed very creditably, he said next year many more would present themselves, and the benefit these examinations extended to country schools would be more widely disseminated.

The following list of prizes was then read, each of the successful candidates receiving his degree as he came before the Principal :—

PASSED FOR ASSOCIATES IN ARTS.

J. Herbert Darey.—(High School.) Latin,* Greek,* French,* Geometry,* Algebra,* Mensuration,* English Literature,* History,* Geography,* Scripture.*

Paul Theodore Lafleur.—(High School.) Latin,* Greek,* French,* Geometry,* Algebra,* Mensuration,* English Literature,* History,* Geography,* Scripture.*

Edwin Hudson Bisset.—(High School.) Latin,* French,* Geometry,* Algebra,* Mensuration,* English Literature,* History,* Geography.

Andrew G. Ross.—(Proprietary School.) Latin,* French, German,* Geometry,* Algebra, English Literature,* History,* Geography,* Scripture.*

James R. Foster.—(Proprietary School.) Latin, French, German,* Geometry, Algebra, English Literature,* History,* Geography.*

Frederic Mindon Cole.—(High School.) Latin, French, Geometry, Algebra, Mensuration, English Literature,* History, Geography,* Scripture.*

William Dawson McGregor.—(Bræside Academy.) Latin, French, Geometry,* Algebra, Mensuration, History,* Geography,* Botany.*

John Ewart.—(Bræside Academy.) Latin, French, Geometry, Algebra, History,* Geography,* Scripture.*

J. Gordon Gibson.—(Dunham Academy.) Latin,* French, Geometry, English Literature, Geography,* Scripture.*

Wilfred T. Skaife.—(High School.) Latin,* French,* Geometry,* Algebra, History,* Geography.*

Charles J. Walker.—(Proprietary School.) Latin, French, Geometry, Algebra, English Literature, History,* Geography.*

PASSED FOR JUNIOR CERTIFICATE.

William R. Robertson.—(High School.) French, Geometry, Mensuration, English Literature, History, Geography.

Each boy received the customary marks of applause from his school-fellows as he came to the platform and received his certificate.

The Chairman having called upon him,

The Rev. Dr. Murray said as one of the examiners he had been asked to say a few words as to the examination and its objects. The examinations were university examinations, and intended to give education in its truest sense, that was to develop the resources of the mind in order to accomplish the great purposes

* Creditable answering.

for which man had been made. Education did not make men mere instruments altogether. When anyone made an object for himself in life he made—whether in law or medicine—himself the instrument for the accomplishment of the end which his department had in view. It was the highest and holiest aim in life for a man to endeavor to carry out the purpose for which he had been created to the glory of his maker. Consequently the highest end of man was to develop himself. In connection with universities, there were departments, but the main end of these examinations was education in its highest sense, or rather a tendency to test the quality of education given in the schools. It had been said that the university was going beyond its functions in having these examinations. He was of opinion that the argument was untenable and that the university did not go beyond its functions in testing the capacity of those who were to enter, and afterwards entered its precincts. As to the argument that the title of B.A. given in these examinations tended to throw discredit on the degree, it had been said that the title should not grace the name of every vulgar shopkeeper, but it was his opinion that any honorable man would do credit to the title that his capacity and education had earned for him. He then proceeded to compliment the young contestants on the answers he had received, and this confirmed him in the opinion that the examinations were successful. In closing he recommended that prizes be offered to the boys and girls who come out highest, and also to the school teachers in schools which seat the largest number of successful competitors. He thought those examinations were a test of the teachers' capacity for educating, and illustrated the standard of education of whatever school they came from, and he was certain the friends of education in the city would take measures to reward the teachers in some way. He recommended local centres of examination for country districts, because many difficulties stood in the way of sending young boys or girls to the city from country towns or villages. Expense and danger were incurred. To the boys who had not succeeded he gave a word of encouragement, and suggested that scholars who were unsuccessful should be pointed out the branches in which they had failed, so that they could in after life make good what they had passed over at school.

The Rev. Mr. Lorley, who had also taken part in the examinations, said he might have spoken of the very weak answers that had been given, though perhaps it might be more satisfactory to dwell particularly on the stronger ones, which, after all, were most numerous, some of them really surprising him. The most unsatisfactory answers had been given to those questions which were the most elementary character, and he would counsel the boys to be more thorough with the foundation or elementary principles, which they should endeavor not to forget. Attention to this would save them from constantly going back and losing time when they were trying to get forward in the more difficult branches. On the whole the results of the examination were in advance of that of last year, and the papers on Algebra, Geography, Arithmetic and Mensuration were really surprising, two of the boys giving answers in Algebra that he did not all expect. The paper on that subject was a very stiff one, which fact his colleagues would admit. He endorsed Professor Murray's remarks as to the prizes, and regretted that the two boys at least who had carried away diplomas had not also earned prizes of some value.

Principal Dawson said with regard to prizes that the boys would probably get prizes from the schools who sent them, and the Rev. Mr. Lorley having pronounced the Benediction, the proceedings closed.

Villa Maria Convent School.

The annual distribution of premiums, medals and honors to the pupils of this Institution, took place on the 22nd June. The annual event was formerly counted among the most brilliant of the season, being witnessed by the *elite* of Montreal society who made a point to visit what was in former days the Vice-Regal mansion, eager to enjoy the treat there offered to the admirers of beauty, art and talent. It was, however, celebrated, without its usual *eclat* this year, owing to the death of the late Superioress, the well known and lamented Sister of the Nativity. The exercises were conducted in private, a few only of the more intimate friends of the Institution being in attendance. The medals for general proficiency, presented by His Excellency the Earl of Dufferin, were awarded as follows:—The silver one was awarded to Miss Josephine Perrault of Montreal; Miss Maggie O'Meara of Pembroke, Ontario, being almost equal in merit, received a handsome medal as a testimony of successful competition, from the Lady Superioress General. In the contest for the bronze medal, Miss Hortense Murphy, of Montreal, and Miss Marion Murphy, of Quebec, were proclaimed the successful candidates in a class of nineteen. The question of assigning it was decided by drawing; the higher number favoring Miss Hortense Murphy. The other young lady was compensated for her loss, by a beautiful wrought silver medal, presented by the Reverend Mother Superioress. Congratulatory addresses were afterwards tendered by the members of their respective classes to the happy winners of those honors. The Edward Murphy prize, a valuable microscope, with an accompanying treatise, was awarded to Miss Lizzie Brennan, for success in the study of the natural sciences. The exquisite gold medal, presented by Mrs. Edward Murphy, as the prize of culinary art and domestic economy, was taken by Miss Zoe Sache, of Montreal. This course is complete, and affords young ladies every advantage for acquiring a practical knowledge of housekeeping. An address of thanks in the name of the graduating class was presented to Mr. and Mrs. Edward Murphy, whom this institution counts among its most distinguished and generous patrons. Medals for excellence of deportment were awarded to Miss Alice Collins and Miss Lena Kelly; for composition to Miss McLaughlin and Miss Gibson, and for mathematics and bookkeeping to Miss M. Cuddy and Miss Marion Murphy. The names of the young ladies who received the graduating honors are as follows:—Misses Josephine Perrault, Zoe Sache, Lizzie Brennan, Katie Donnelly, Maggie Cuddy, Alice Collins and Agnes Donovan, of Montreal; Miss Maggie O'Meara, of Pembroke, Ont.; Miss Bruneau, of Sorel; Misses Fortin and Slavin, of St. John's, and Miss McLaughlin, of Portland, Me. A handsome volume was presented to each of the pupils. This work is a collection of the reminiscences of their school life, and personal recollections of Sister Nativity, made by the young ladies of the Institution, and to which have been added several letters, received by members of her community, or by the pupils themselves at the death of this venerated Superioress; also the obituary notices and accounts of the obsequies as given by the press, and selections from the "In Memoriams" written on this occasion. Beautiful and touching valedictories were recited by the young ladies of the graduating class, during which the deepest emotion was evinced by those sweet-girls, who, in their turn, had now to cross the threshold of their well-loved

"Alma Mater," where they are preserved from the world's blighting contact, far removed from its pomps and its vanities, and where they are taught to prize and emulate those more real and noble accomplishments which constitute true worth and dignity in woman.

At the close of the seance the Very Rev. Superioress, who presided, made a few feeling and appropriate remarks on the general satisfaction given by the pupils to their devoted teachers. She bade them adieu and hoped they would enjoy their vacation, and announced that the Convent would re-open on the 31st of August next.

Mr. Edward Murphy made a few brief remarks, thanking the young ladies for the beautiful and flattering address presented to Mrs. Murphy and himself. He complimented them on their success, as evidenced by the prizes and honors awarded. He said their expressions of gratitude to their teachers for their motherly solicitude and tender care were peculiarly grateful to his feelings, as he also was deeply indebted to their devotedness. Addressing the graduates, he said, now that their school days were ended and they were about to mix with the world, he hoped they would carry with them the imprint of the moral and religious training instilled so carefully into their young hearts, and would follow in the footsteps of the former graduates of the Institution, who are now not only joys to their families, but also ornaments of society, remarkable for their unaffected piety and simplicity of manner, which add lustre to the brilliant educational accomplishments they received at the Villa. He said that his observation of the young ladies brought up in the institution proved to him, and he was glad to bear testimony to the fact, that the wellgrounded principles of piety were implanted so deeply and so solidly into their youthful minds that they did not wear off by change of position and contact with the world, but only shone the brighter contrasted with those less favored in their training. He remarked that the pupils brought up in the institution looked back to their bright and happy school days at Villa Maria, and their eagerness to visit their teachers was different from his experiences and reminiscences of his own irksome school days. He added, that the tears and emotions of the young ladies in parting from their loved and devoted teachers spoke eloquently that they also shared the feelings of former graduates. He concluded by congratulating the good Nuns on the marked success of their admirable institution, and said that the citizens of Montreal were favored in having in their midst a community doing such a vast amount of good as is done by the Ladies of the Congregation of Notre Dame.—*Montreal Gazette.*

(*To be continued.*)

McGill University Intelligence.

The corporation of McGill University have pleasure in acknowledging the following donations to the Faculty of Arts, during the quarter ending June 21st, 1876:—

TO THE LIBRARY.

From Principal Dawson, LL.D.—Gentry's Life—Histories of the birds of Eastern Pennslyvania, vol. Ist., 8vo.

From the Superintendent of Education, Nova Scotia.—Annual report of the common, academic, and normal and model schools in Nova Scotia, for 1875, pam., 8vo

From the Rev. T. W. Wood.—Ecclesiastical and academical colors, 18mo.

From W. H. Young, Esq., Troy N. Y.—Proceedings of the semi Centennial celebration of the Rensselaer Polytechnic Institute, Troy, N. Y., June, 1874, 8vo.

From His Excellency the Governor-General of the Dominion of Canada—London University Calendar for the year 1876, 8vo.

From the Government of the Province of Quebec—Statutes of the Province of Quebec, 1875, 8vo.

From the Minister of Public Instruction for the Province of Quebec for 1863-74, and for part of 1875—Four copies, 8vo

From the Literary and Historical Society of Quebec.—Transactions. Sessions of 1873-74, and 1874-75, pam., 8vo.

From Dr. Woolwort, Albany, N. Y.—Natural History of New York. Palæontology. By J. Hall. Part 1st, of vol. iv. 4to.; twenty-fourth and twenty-sixth annual report on the New York State Museum of Natural History, 2 vols., 8vo.; twentieth and twenty-third annual report on the condition of the New York State Cabinet of Natural History, 2 vols., 8vo.; University of the State of New York, twenty-eighth annual report, 1875, 8vo.; annual reports on the condition of the State Cabinet of Natural History of the State of New York, 13 pam., 8vo.

From Peter Redpath, Esq.—Memoirs of the Historical Society of Pennsylvania, 5 vols., 8vo.; historical map of Pensylvania, 1875, 8vo.; contributions to American history, 1858, 8vo.; history of Braddock's Expedition, 8vo.; record of the Court at Upland, in Pennsylvania, 1676 to 1681, 8vo ; discourses on the inauguration of the new hall of the Historical Society of Pensylvania, pam , 8vo.; catalogue of the paintings, &c., belonging to the Historical Society of Pennsylvania, pam., 8vo ; proceedings of a meeting at a Bar of Philadelphia relative to the death of C. J. Biddle, pam., 8vo.

From the Government of the Dominion of Canada—Censuses of Canada, 1665 to 1871, vol. iv., 8vo.

From S. G. Lapham, Esq.—Biographical sketch of J. A. Lapham, LL.D., pam., 8vo.

TO THE MUSEUM.

From J. D. H. Wilkins, B.A.S.—Specimens of upper silurian from Ontario.

From Mrs. P. Redpath—Nest of the trap door spiders, from Mentone.

From the Museum of Comparative Zoology, Cambridge, U. S., per Prof. A. Agassiz—Seventy species of fishes, principally from Brazil.

From Mr. Cowan, of Brockville, per Dr. Harrington—Specimens of mineral manures and chemical preparations from the Brookville Chemical and Superposphate Works.

OFFICIAL NOTICES.



Ministry of Public Instruction.

APPOINTMENTS.

SCHOOL COMMISSIONERS.

His Excellency the Lieutenant-Governor has been pleased, by order in Council, dated the thirty first day of May, one thousand eight hundred and seventy six, to make the following appointments of school commissioners, to wit:

County of Laprairie, Saint Constant.—Mr. Moïse Boutillier, *vice* Mr. Joseph Brassard, deceased, and Mr. Theophile Robert, *vice* Mr. Hormidas Barbeau.

County of Saint Maurice, Shawenigan.—Mr. Adolphe Dupont, *vice* Mr. Theodore Lupien, absent.

County of Rimouski, Saint Gabriel.—Mr. Julien Dube, *vice* Mr. Cypr. Gaudreau, absent.

And by another order in Council, dated the 7th June, 1876.

County of Gaspe, Les Capucins.—Messrs. Augustin Ross, Edmond Degagné, Philias Soucy, Paul Ouellet and Augustin Côté.

And by another order in Council, dated the 17th of June, 1876.

County of Gaspé, Grande Arbour.—Messrs. Timothé Auclair, Joseph Drapeau, Theophile Rioux, Charles Castonguay and Jean Terrien.

And by another order in Council, dated the 20th June, 1876.

County of Beauce, Les Saints-Anges.—Thomas Turmel, Urbain Vaillancourt, Joseph Cloutier, Ignace Turmel and François Lehouillé.

County of Ottawa, Saint Edouard de Wakefield.—Messrs. Edouard Pelissier, Benjamin Coté, Hypolite LeGrand, Robert Blackburn and Patrick McGlashan.

And by another order in Council, dated the 20th June, 1876.
Quebec, Protestant Board.—Robert Herbert Smith.
County of Ottawa, Hinks.—Alexis Deslages, Louis Fournier, Charles Aumond, Cornelius Ryan and Patrick S. Bean.

ERECTION OF SCHOOL MUNICIPALITY.

His Excellency the Lieutenant-Governor has been pleased, by order in Council, dated the 7th of June, 1876, to make the following erections of school municipalities, to wit :

County of Hochelaga, village of N. D. de Graces.—To erect into a school municipality the said village, comprising the Cote Saint Antoine, the Cote Saint Luc and the coteau Saint Pierre, such as it is actually erected for rural purposes.

Gaspé, Les Capucins.—To detach from the municipality of Cap Chatte that tract of territory which extends from the parish boundary of Saint Norbert du Cap Chatte east wards, to the river called Grande Rivière des Capucins, and the part not erected of township Romieux, to the limits of Daliboire.

Rimouski.—To detach from the school municipality of Saint Simon the territory occupied by the following persons, namely : Samuel Gaudreau, Octave Boucher, Joseph Lagacé, Antoine Fournier, junior, Achille Gaudreau, Napoléon Caron, André Fournier, to annex it to that of Saint Fabien for school purposes.

And by another order in Council, dated the 17th of June, 1876.

Levis, Saint Telesphore.—To erect into a school municipality the new parish of Saint Telesphore, in the county of Levis ; bounded on the north-east by the parish of Saint David de l'Aube Rivière, north-west by the river Saint Lawrence, south-west by the Etchemin River, such as it is erected for other civil purposes, by the proclamation dated the twenty-sixth day of April last.

Gaspé, Grande Arbour.—To detach from the municipality of Mont Louis, county of Gaspé, the territory comprised between the Petit Cap de Glande, and the limits of the municipality of Rivière à Marthe, and to erect into a school municipality, under the name of Grande Arbour.

And by another order in Council, dated the 20th of June 1876 :

Beauce, Les Saints Anges —To erect into a school municipality, under the name of Les Saints Anges, in the county of Beauce, the new parish of that name, which is a dismemberment of Sainte Marie and Saint Joseph, with the limits assigned to it as a parish, in the canonical decree of His Grace the Archbishop of Quebec, of the 14th of November last (1875), less that part of the concession in the third range known as Petit Saint Elzéar, which is comprised within the district number thirteen of Sainte Marie, and which will continue to be so.

Ottawa, Saint Edouard de Wakefield.—To erect into a school municipality, under the name of Saint Edouard de Wakefield, in the county of Ottawa, the territory comprising lots numbers twenty-three, twenty-four, twenty-five, twenty-six, twenty-seven and twenty-eight, in the seconde range of township Wakefield, and the last fourteen lots of the third, fourth, fifth, sixth, seventh, eighth, ninth and tenth ranges, and the ten last lots of the first, second, third, fourth, fifth and sixth ranges of township Portland, in the same county.

And by another order in Council, dated the 22nd of June 1876 :

Hochelaga, River Saint Pierre.—To erect into a school municipality the village of River Saint Pierre, county of Hochelaga, with the same limits as those assigned to it as a rural municipality on the first day of January, one thousand eight hundred and seventy-five.

And by another order in Council, dated the 30th of June, 1876.

Temiscouata, Saint Clément.—To erect into a school municipality the new parish of Saint Clement, in the county of Temiscouata ; bounded as follow, namely : on the north by the river Mariekeihe, south by the second range of the township Hocquart, north east by the Trois-Pistoles river, south-west by part of township Viger, and part of township Demers, containing five miles and one third in front by five miles in depth.

Richmond, Windsor Mills.—To detach the village of Windsor Mill, in the country of Richmond, from the actual municipality of Windsor in the same county, to erect it into a separate school municipality under the said name, and with the same limits as it has for municipal purposes.

Richmond, Danville.—To detach the village of Danville, in the county of Richmond, of the township of Shipton, in the same county, and to erect into a separate school municipality, under the said name, with the same limits as those assigned to it for municipal purposes.

POETRY.

O little feet, that such long years
Must wander on through hopes and fears ;
  Must ache and bleed beneath your load ;
I, never to the wayside inn,
Where toil shall cease and rest begin,
  Am weary thinking of your road.

O little hands, that, weak or strong,
Have still to serve or rule so long,
  Have still so long to give or ask ;
I, who so much with book and pen
Have toiled among my fellow men,
  Am weary thinking of your task.

O little hearts, that throb and beat
With such impatient feverish heat,
  Such limitless and strong desires,
Mine, that so long has glowed and burned
With passions into ashes turned,
  Now covers and conceals its fires.

O little souls, so pure and white,
As crystalline as rays of light
  Direct from Heaven, their souree divine !
Refracted through the mist of years,
How red my setting sun appears ;
  How lurid looks this sun of mine.

—H. W. Longfellow.

THE JOURNAL OF EDUCATION.

QUEBEC, JULY, 1876.

Department of Public Instruction.

Report of the Honorable the Minister of Public Instruction.

(Continued.)

McGILL UNIVERSITY.

The McGill University has been the first institution of the country, which, recognizing the want in our scholastic establishments of a course of science applied to the arts, has taken upon itself to fill the blank.

In truth is is only by a course of this kind, that we can educate engineers, architects, men capable of working mines and of managing to advantage industries of all descriptions. We cannot, in a country such as ours, where so many railways are in process of construction, and so many mines to be developed, so many industries ready for working, awaiting, so to speak, hands ready and prepared to assume the management, we cannot, we repeat, attach too much importance to education of this nature.

It is because we have hitherto failed in having courses of this kind, that almost all the engineers employed on our railways and other great public highways, are strangers, while we might have undertaken their control ourselves, had we earlier possessed a special institution wherein to attain the necessary knowledge.

I cannot too highly congratulate the McGill University, upon having for several years past, entered upon this course. A liberal subscription on the part of the friends of the institution, placed it first of all in a position to begin. Subsequently, thanks to the aid accorded by government, the directors were enabled to give to this

course of study all the efficiency desirable, as the scheme of education given below amply establishes.

The number of diplomas already conferred is also a clear proof of the benefit which has already been effected, and which may be looked for hereafter.

Through this institution and the polytechnic school, there is every reason to hope that before very long, we shall have a sufficient number of educated men fully competent to assume the management of all our great public undertakings and private industries.

Department of Practical and Applied Science, in the faculty of arts.

Geology and Palæontology.—W. Dawson, LL.D., F.R.S., Professor.

English Language.—Ven. Archdeacon Leach, LL.D., Professor.

German.—C. F. A. Markgraf, M. A., Professor.

Mathematics and Natural Philosophy.—Alexander Johnson, LL.D., Professor.

French.—P. J. Darey, M. A., Professor.

Civil Engineering and Applied Mechanics.—G. F. Armstrong, M. A., C. E., F.G.S., Professor.

Practical Chemistry.—Gilbert P. Girdwood, M.D., Professor.

Assaying and Mining.—Bernard J. Harrington, B. A., Ph. D., Professor.

Assistant to Professor of Engineering—C. H. McLeod, Bachelor of Applied Science.

The courses of studies in this Department are designed to afford a complete preliminary training of a Technical as well as a Theoretical nature, for such students as are preparing to enter any of the various branches of the Professions of Engineering and Surveying, or are destined to be engaged in Assaying, Practical Chemistry, and the Higher forms of Manufacturing Art.

Three distinct courses of study are provided ; each of which extends over three, or under certain conditions (§ I) two years, and is specially adapted to the prospective pursuits of the student.

(1) Civil and Mechanical Engineering.
(2) Assaying and Mining.
(3) Practical Chemistry.

The Degrees conferred by the University upon such Undergraduates of this Department as shall fulfil the conditions and pass the examination hereinafter stated (§ IV) will be, in the first instance, " Bachelor of Applied Science," mention being made in the Diploma of the particular course of study pursued ; and subsequently the degree of " Master of Engineering" on those who have pursued Course 1st, and of " Master of Applied Science" on those who have pursued either of the remaining Courses [2 and 3.]

§ I. MATRICULATION AND ADMISSION.

1. Candidates for Matriculation must present themselves for examination on the 15th September, 1875. They may, however, be admitted at a later period of the Session upon special application, and if prepared to take their places in the classes in progress.

For entrance into the Junior year, the subjects for examination will be :—

Mathematics.—Arithmetic ; Algebra, to Simple, Equations inclusive ; Euclid's Elements, Books I, II., III.

English.—Writing from Dictation.

2. Candidates may enter in the Second or Middle year, and so reduce the course necessary for the degree in Applied Science, from three to two years, if competent to pass a satisfactory examination in the following subjects. In addition to this, those who intend to pursue Course 1st, must satisfy the Professor of Engineering that they possess a reasonable knowledge of the elements of Surveying and Levelling and of Linear, Drawing and Projection, as in Castle's Text Book of Surveying, and Davidson's Linear Drawing and Orthographic Projection, and of the *Elementary* Course of Twisden's Practical Mechanics, as in Chap. 2 Section 1, and Chap. 3, of Part 1st.

Mathematics.—Euclid, Books I., II., III., IV., VI., with defs. of Book V. omitting propositions 27, 28, 29, of Book VI.

Algebra.—To end of Quadratic Equations (Colenso's Alg.)

Trigonometry.—Galbraith and Haughton's Trigonometry, Chap. 1, 2, 3, 4, 6, to beginning of numerical solution of plane triangles.

Arithmetic.—Ordinary rules.—Proportion, Interest, Discount, &c., Vulgar and Decimal Fractions, Square Root.

English.—Writing from Dictation.

Chemistry.—Inorganic as in Wilson's Elements, (or the Candidate must take this subject in the Middle year.)

Candidates must be prepared to pass in one or other of the above Examinations at the beginning of the session. Students who have passed in Class 1st or 2nd in the above subjects, in the Intermediate Examination of the University, may be admitted without further examination in such subjects.

3. Occasional Students may be admitted to the Technical Classes upon payment of special fees, (§ VIII.)

§ III. COURSES OF STUDY.

The following are the courses of study arranged for the approaching Session, 1875–76 :—

1. *Course of Civil Engineering and Surveying.*

Junior Year.—Ordinary Mathematics of the first year in Arts, (with Honor Mathematics as far as practicable) ; Chemistry ; English Language and Litterature ; French or German, Linear Drawing and Projection ; Surveying and Mensuration, with use of Instruments ; Elementary Practical Mechanics.

Middle Year.—Ordinary Mechanics and Mathematical Physics of the Second and Third Years in Arts (with Honor Mathematics of the Second Year as far as practicable) ; Experimental Physics ; Zoology ; French or German ; Drawing—Isometrical and Perspective Projection, Levelling ; Art of Construction :—Mensuration.

Senior Year.—Mathematical Physics (Honor Course of Third year in Arts, optional.) Experimental Physics : Geology and Mineralogy : French or German ; Applied Mechanics ; Principles of Mechanism ; Drawing—Constructive and Mechanical ; Construction ; Designing and Estimates.

2. *Course of Mining Engineering and Assaying.*

Junior Year.—Same as Junior of Civil Engineering Course.

Middle Year.—Ordinary Mathematics and Mathematical Physics of 2nd and 3rd year in Arts ; Experimental Physics ; Zoology, Geology and Mineralogy ; French or German ; Drawing—Orthographic and Isometric Projection ; Levelling ; Construction (in part) : Mensuration ; Use of Blowpipe ; Assaying.

Senior Year.—Geology (Honor Course) ; French or German ; Experimental Physics ; Drawing of Geological Maps and Sections, and plans of Mines ; Mining and Mineral Surveying ; Metallurgy ; Adplied Mechanics : Principles of Mechanism.

3. *Course of Practical Chemistry and Assaying.*

Junior Year.—Same as above (with Botany.)

Middle Year.—Ordinary Mathematics of Second Year in Arts; Experimental Physics; Botany, (unless taken in the Junior Year); Zoology; French or German; Practical Chemistry.

Senior Year.—Mathematical Physics; Experimental Physics; Geology and Mineralogy; French or German; Metallurgy; Assaying.

OBSERVATORY.

Undergraduates taking any of the above courses may receive instructions in Meteorological observations from Mr. C. H. McLeod, Bac. App. Sc., in the College Observatory.

§ IV. EXAMINATIONS.

COLLEGE EXAMINATIONS.

There will be a Sessional Examination at the end of each year, and also a Christmas Examination, in the same manner as provided for Undergraduates in Arts; but supplemental examinations will not be allowed to students failing in the Professional or Mathematical subjects of the Middle and Senior years, except by special permission of the Faculty of Arts.

UNIVERSITY EXAMINATIONS.

1. *For the Degree of Bachelor of Applied Science.*

Candidates must pass the Sessional Examinations of the Junior and Middle Years, or if admitted in the Middle year, of that year only. They must also pass a final Examination at the end of the Third Year, in all the subjects of that year, in addition to a special examination in Mathematics, in case of those who graduate in the course of Civil and Mechanical Engineering.

Graduates in Civil Engineering of this University may obtain this Degree and a Diploma in exchange for that which they at present hold, upon application to the Corporation through the Registrar, and upon payment of a fee of $3.

2. *For the Degree of Master of Engineering.*

Candidates must be Bachelors in Applied Science of at least three years' standing, and must produce satisfactory certificates of having been engaged during that time upon *bona fide* work in either the Civil or Mechanical Branch of Engineering.

They must pass with credit an examination which will extend over the general Theory and Practice of Engineering, in which papers will be set having special reference to that particular branch upon which they have, during the three preceeding years, been engaged.

The examination will be held once in each year, in the second week of the month of December, and will be partly *viva voce.*

Notice of the intention of a Candidate to offer himself at any examination for this degree must be sent in, together with the necessary Certificates and Fees, not less than two calendar months before each examination is to be held.

3. *For the Degree of Master of Applied Science.*

Candidates must be Bachelors of Applied Science of at least three years' standing, must present certificates of having been employed during that time under competent guidance in some branch of Scientific Work, and must pass with credit an examination in the Theory and Practice of those Branches of Scientific Work in which they may have been engaged. The other conditions as under the last heading.

4. *For the Degree of B. A. with that of Bachelor of Applied Science.*

Undergraduates in Arts who have passed the Intermediate examination may (if qualified under § 1,) take the Middle and Senior years of either of the courses in Practical Science along with the Third and Fourth in Arts, and may in the Third and Fourth years omit Mental and Moral Philosophy and may substitute French and German for Latin and Greek. Spanish may be taken instead of French or German.

In addition to the subjects of the Science course, they will be required to satisfy the Examiners in the following subjects; viz: Mathematics, Natural Science, Experimental Physics and Modern Languages.

Students in Arts desirous of availing themselves of these privileges are required to take a preliminary course of Linear Drawing and Projection in the second year.

Students proceeding to the double degree, will enjoy all privileges with reference to Scholarships, Exhibition Prizes and Honours, in the same manner as Students in Arts.

Such Students may by permission of the Faculty be Candidates for B. A. Honours, and may be allowed to take the Examination for B. A. in their fourth year in Arts, and to take the Examination for the degree in Practical Sciences in the following year or they may graduate in the Science course alone in the fourth year, and graduate in Arts in the following year. In the latter case they shall not compete for medals with the regular Students of the year.

Undergraduates in Arts of the third or fourth years, or Graduates of any University, entering the Department of Practical Science, may at the discretion of the Professors be exempted from such lectures in that Department as they may have previously attended as Students in Arts, but must pass all of the examinations.

The course of apdlied Sciences has furnished since its formation:

BACHELORS.

In civil mechanical engineering......................	16
In mining and assaying	4
Graduates in civil engineering.........................	16
Total..	36

INDUSTRIAL SCHOOLS, OR SCHOOLS OF ARTS AND SCIENCES.

In 1872, the "Board of Arts and Manufactures" was replaced by the "Council of Arts and Manufactures," of which the Commissionner of agriculture and the Minister of public instruction are members.

Since that period, the council has not been idle, but has endeavored to expend, to as much advantage as possible, the funds placed at its disposal by the legislature.

These institutions cannot be too highly recommended. Trades and manufactures are the chief occupation of the majority of our population; and if we desire our fabrics to compete with those of foreign countries, we must have schools in which our youth of the country can recieve a practical education in arts and manufactures.

To the Honorable the Minister of Public Instruction of the Province of Quebec.

In submitting the second annual report of the operations of the council of arts and manufactures, we have

to state that the year through we have just passed has been one replete with difficulties, and that these difficulties have been of such a nature as to seriously retard the work in which we are engaged.

Notwithstanding this, the council has prosecuted the work of art education throughout the province, as far as the means at its disposal would allow; schools having been in operation in eight different localities, and, considering that our institution is still in its infancy, the results attained thus far have been exceedingly gratifying.

An increasing desire has been manifested on the part of the working classes to avail themselves of the technical education offered to them, and we feel assured that a superior taste and finish will soon be noticeable in many of our leading lines of manufacture.

During the year new schools have been established in New Liverpool and St. Hyacinthe, and these have been carried on successfully, particularly the former; and it is probable that, during the present year, application will be made from one or two localities, for the establishment of schools of arts and design.

The council has for some time past deeply felt the want of a thoroughly trained teacher, possessing certificates of competency, to assume the direction of all the schools in the province; and although the funds at the disposal of the council at the present time will hardly warrant the expenditure, they are endeavoring to obtain the services of a director, previous to commencing next winter's operations.

It is exceedingly desirable to have a uniform system of instruction adopted in all the schools and to have the same text books used. This would enable the pupils to be more thoroughly grounded in their work as each one would be compelled to study the elements and fundamental principles, before going at once into that branch to which his inclination would most naturally lead him.

Good results would, we feel assured, follow from the establishment of competitive examinations, which might take place annually under the direction of qualified examiners; and the granting of diplomas and certificates to those obtaining a certain standing would urge the pupils on to greater diligence in their studies.

The subjects taught in the different schools embraced the following:

Geometry,	Chemistry.
Free hand drawing.	Mensuration.
Architectural drawing.	Modelling.
Mechanical "	Water Color Painting.

The progress made by the pupils in many instances has been very encouraging, the drawings particularly being of a very high order of merit.

Herewith is added a curtailed report of the operations of each school.

MONTREAL SCHOOL.

This school was under the direction of the members, resident in Montreal: owing to the Crystal Palace having been wrested from us there was some delay and difficulty in starting, as new forms, blackboards, tables, &c., &c., had to be procured, those formerly in use being detained in the Crystal Palace. The classes, with the exception of, that of chemistry were held in the St. Nicholas Hall Building, which was comfortably fitted up for the purpose. The school was, on the whole, very successful, although there is no doubt that if we could have started earlier the attendance would have been much larger.

The following is a list of the different classes with the attendance at each and the names of the different teachers.

	Total No. of pupils.	Aver. No. of pupils.	No. of lessons.	No. of individual lessons.	Names of teachers.
Free hand Drawing......	134	66	51	3366	Wm. Lorenz.
Architectural "	29	13	25	325	J. R. Poitras.
Mechanical "	48	14	37	522	A. Massy.
Geometry	14	7	25	175	J. T. Anderson.
Modelling..................	20	12	47	564	E. Cleff.
Chemistry..................	40	15	30	450	A. Duval.
Water Color Painting...	8	6	19	114	Wm. Lorenz.
	239	133	234	5516	

QUEBEC SCHOOL.

The classes in Quebec were open in the month of October in the building known as "La Salle du Patronage" St. John Suburbs. These classes have been very successful, more pupils desiring admission than the rooms would accomodate: the classes were under the direction of Messrs. Peters, Hamel, Campbell, and Lepage, gentlemen well qualified to perform their duties. During the quarterly meeting of the council in February, the school was visited by the members who expressed themselves as highly pleased with the arrangements of the school and the progress of the pupils. The total number of pupils was 65, with an average attendance of 36, and the total number of lessons 155, and number of individual lesssons 5580.

SHERBROOKE SCHOOL.

This school was opened in December 1874, and remained open till April 1875. The results have been very satisfactory, many of the students acquitting themselves in a manner highly creditable to them, and far beyond the most sanguine expectations of those in immediate control. An entrance fee of $1.00 was imposed upon each student and the proceeds expended in the purchase of prizes, which, after a careful examination of the papers by impartial judges, were awarded to the successful competitors. This school was under the control of Mr. R. Smith, a member of the council residing in Sherbrooke. The total number of pupils was 28, average attendance 24, number of lessons 35, and number of individual lessons 840. The teacher was M. E. Booth.

LEVIS SCHOOL.

This school was opened on the 15th December 1874, and numbered seventy-two pupils, and as some of these had never studied Geometry or Drawing, it was decided to hold two classes—one for beginners, and the other for those more advanced. Owing to the difficulty in securing suitable rooms it was found necessary to place the school outside the town, and this in a great measure prevented the attendance of many who would have otherwise become pupils. It is hoped that, next winter conveniently situated rooms will be secured and the usefulness of the school thus much enhanced. The average attendance was 38, and the number of indivi

dual lessons 1634. The school was under the direction of C. W. Carrier, Esq., member of the council, the teachers being Messrs. Beauty and Morency.

SOREL SCHOOL.

This School was opened on the 2nd January and closed on the 1st May 1875. Four lessons per week in Linear Drawing and four in Geometry were given. The regular attendance of the pupils and the zeal manifested by them in their work is to be noted. It is hoped that by an addition of models and drawings relating to Ship-building and machinery, the attendance will be largely increased next year. The number of pupils was 22, average attendance 18, number of lessons 58, and number of individual lessons 1044. The school was under the direction of Mr. A. Beauchemin, member of the council, the teacher being Mr. F. Lachance.

THREE RIVERS SCHOOL.

This school was opened in the first week of October 1874, and was closed at the end of April 1875. The progress of the school was not so satisfactory as was expected, owing to the fact that Mr. R. McDougall, under whose control it was, was absent from Three Rivers during the winter; the illness of the teacher Mr. Capelle, was also a serious drawback. The average attendance during the winter was six.

NEW LIVERPOOL SCHOOL.

This School although only established last winter, has been very successful and shews a record that compares very favorably with that of many, which have been longer in existence. The success has been beyond the most sanguine expectations, the interest manifested by the pupils has been very encouraging, many of them residing upwards of a mile in distance from the school and the attendance being regular throughout the winter. The drawings of the pupils are very creditable indeed, more particularly when we take into consideration that not one of them had ever before received instruction in this branch. The greatest eagerness, has been manifested for knowledge and the progress of this school serves to show in a marked manner what could be accomplished if a sufficient sum of money was placed at its disposal to procure the necessary apparatus.

The total number of pupils was 79, the average attendance 41, number of lessons given 26, and number of individual lessons 1066. The success of the school is entirely due to the untiring energy of Mr. L. J. Boivin, who manifested a constant interest therein, and whose services were appreciated by a presentation and congratulatory address from the pupils.

ST. HYACINTHE SCHOOL.

This school was also established only last winter at the request of a number of residents of the town; the establishment of a number of manufactories having tended in a large measure to increase the working population. The establishment of the school was not without its difficulties, seeing that the pupils had no idea whatever of drawing and very few understood its usefulness. The school was opened on the 21st of October and closed on the 24th of April; the progress made by the pupils was very satisfactory, but the unfortunate illness of the teacher Mr. G. Piret, retarded the work to a certain extent; but it is expected that next year the school will be carried on with renewed vigor, seeing that the difficulties in making a start have been overcome. The number of pupils was 25, and the number of lessons given 24.

The success that has attended the school thus far is due in a great measure to the zeal displayed by Mr. Boucher De la Bruière, who has taken a deep interest in it, since its inauguration.

In extenuation of such deficiencies in this report as may be apparent, we beg leave to refer to the difficulties with which we have had to contend, and to the recent institution of this council, which in the two years of its existence has been able as yet only imperfectly to organize the means necessary to carry out its important functions.

We may say that we hope to secure the permanent establishment of an industrial museum and library of reference, and of schools of practical science and design, of which we would retain the general supervision so that the promotion of our arts and manufactures, which, so to speak, have just been commenced are so important in the present state of this province, might be fostered.

The accompanying statement shews the amounts received and expended up to the date of the annual meeting 11th May 1875. By this it will be seen that our actual expenditure has exceeded our receipts by $3677.30.

The whole respectfully submitted

Adolphe Lévêque,
President.

S. C. Stevenson, B. A.,
Secretary.

Montreal, 9th October 1875.

DEPOT OF BOOKS, MAPS, &c.

I must again, this year, insist upon the necessity of establishing, at as early a date as possible, a depot of books, geographical maps, terrestrial globes, and other school furniture. Up to this time sufficient importance has not been attached to this scheme, which is however, admirably calculated to give a new impetus to our schools. They are rare, and the price is so high as to discourage even those desirous of obtaining them. By means of depots of which I speak, the price might be reduced one half, which would enable us to compel all schools to provide themselves therewith.

A depot might be made with the secretary treasurer of each municipality, who should be entrusted with their distribution amongst the teachers both male and female, as occasion might require. No pupil would then be retarded in pursuing his studies, through lack of school material, rendered necessary by his continued progress. Every thing would be bought in the name of the municipality, and supplied on application. A slight increase in the tax would suffice to defray this expenditure, and parents would see their children better and at much less cost.

SALARIES OF TEACHERS.

This is a subject to which unfortunately we have to advert every year. We shall never have good schools until we can procure the services of competent teachers, and these competent teachers will not take charge of a school unless they are given a reasonable salary, one that would enable them to support their family and retain the position in society to which they are entitled.

So as to give an idea of the state to which public instruction has advanced in the Province of Quebec, I

here give a comparative statement taken from different nations of the number of children attending school in proportion to the population. These statements are based upon the latest statistics and do not go further back than 1870.

PRUSSIA (proper.)

Population			19,255,139

PUBLIC SCHOOLS :

Number of male teachers	30,805		
" Under-teachers	2,557		
" Female teachers	2,815		
		36,157	

PRIVATE SCHOOLS :

Number of male teacher	995		
" Female teachers	688		
		1,683	
Grand Total			37,840

PUPILS : PUBLIC SCHOOLS.

Boys	1,427,191		
Girls	1,398,131		
		2,825,322	

PRIVATE SCHOOLS :

Boys	25,286		
Girls	27,406		
		62,692	
Grand Total		2,878,014	
Institutions of all kinds, such as gymnasiums, schools of arts and manufactures, guardian schools, give a total of		28,484	
Male and Female teachers		47,860	
Pupils, Boys	1,637,809		
Pupils, Girls	1,517,260		
		3,155,069	

To these must be added 6,047 pupils in the universities, and 3,610 pupils attending the 62 normal schools (which gives nearly 60 pupils for each school.)

From these figures it follows that Prussia has one school for every 740 inhabitants, and one pupil in every 6.6 of population.

ENGLAND.

The population of England and Scotland was in 1870, 26,062,721, the number of schools 10,214, and of pupils 2,000,000. England has therefore only one pupil for every 13 inhabitants, and is on this point the most backward of all the protestant countries of Europe, in which the average is from 6 to 7.

UNITED STATES.

In the United States the proportion is one pupil for every five inhabitants; it is the country in which the greatest sacrifices are made for education. The sums devoted to this object greatly exceed similar grants in other countries.

These sums arise from three different sources : from a special fund called the *School fund*, from reserves of land made for that purpose. In the State of Massachusetts this fund amounts to ten millions and a half, to fourteen millions in the state of New-York, and a proportional and often times a larger sum in the other states. In addition there are a special tax and private donations which also amount to a considerable sum.

Education is everywhere regarded as one of the most urgent necessities of the State. The sums granted to it greatly exceed those granted to other objects.

Unfortunately these large sacrifices do not produce the desired results. There are still many persons who lack instruction, without taking into account a large number whose education is very superficial.

Upper Canada (Ontario) may be favorably compared with all countries, as one in which the system of general education is most widely spread and works with the utmost regularity. The last statistics give a little more than one pupil in every 4 of the population, taking the general attendance and one in 8 taking the average. The schools in their various classifications are generally efficient.

The requisite moneys are liberally furnished and are largely increased every year.

The population of that province is for the greater part of english and scotch origin, and nearly all the settlers that have come into the country had a certain amount of education and were accustomed to the usual system of rural and school taxes. Those two elements are completely lacking with us. It is therefore not surprising that our progress is a little slower. For here, we had to create every thing, and to superinduce new habits and those of a kind which tend to appal until the people are taught to understand that the sacrifices to be made by them will insure considerable returns.

Notwithstanding this, we can still compare advantageously with other nations. In fact, statistics establish that we have, in our various institutions, one pupil for every 5.19 of population or 19.26 per cent.

Ontario has 1 in 3.51 or 28.46 per cent.

France has only 1 pupil in 8.7 or 11.44 per cent.

Prussia, as we have seen above, has 1 pupil in 6.6 or 15.15.

England had in 1870, according to the figures we have already given, 1 pupil in 13 of the population, or 7,67 per cent. However, since that time this state of things has been considerably improved. For there, as in many other countries, it has been understood that one of the most effective means of promoting morality and prosperity is the diffusion in as complete a manner as possible of a good and sound education.

OF GYMNASTICS.

Gymnastics played a very important part in the education of the ancients, especially among the Greeks and Romans. The men of those days were consequently more robust and better formed than they generally are to-day.

It is acknowledged that the bodily organisim is strengthened by the even exercise of all the parts that compose it. The muscles are thereby increased in size, strength and suppleness, the bony frame becomes more solid and fits itself more easily to all movements of the body ; digestion and assimilation are active, the blood becomes richer, and carries to all parts of the body fuller life and gives a vigor to the mind which facilitates the development of the mental faculties. *Mens sana in corpore sano.*

We hence see the importance of gymnastics in education, and the urgency that exists of giving it an important place if we wish to form robust bodies and healthy minds.

I conceive that it is hardly possible at least with our present system, to introduce gymnastics into our primary schools. I think, however, that we should, as much as possible, make the children take some exercise, something that would tend to develop their physical forces and agility. But where gymnastics are indispensable, is in our boarding schools, in which children pass from eight to ten years of their life precisely at the time when their physical and mental organisation is being formed. They are obliged to remain seated on a bench during long hours, nearly immovable. How can we expect that at this age, when everything in our nature tends to movement and activity, a similar proceeding should not enfeeble the child if we do not supplement this prolonged repose of the whole system by well ordered exercise, tending to develop and increase their physical strength.

I am aware that at the present day, somewhat more attention is bestowed upon this important subject ; still much remains to be done, and I cannot too strongly urge upon the persons who control our educational establishments, to follow the course which nature itself points out. I say the persons in control, whether male or female, for gymnastic exercises are as essential to woman as to man.

There is no doubt that the numerous cases of pulmonary diseases and dyspepsia, which we meet with every day, are largely due to the fact, that in youth no attention has been paid to the forming of our organism after a normal manner.

In Europe the most celebrated physicians, and all persons who are occupied with the well-being of humanity, supported by governments and by public opinion, have in many instances succeeded in introducing gymnastic exercises into schools, even into elementary ones. The good effects of the system will undouptedly not fail to make themselves apparent on the public health, by rendering each better fitted for the state of life to which he is called.

Let us endeavor as soon as possible to follow the good example shown us in this respect by the Old World.

C. B. DEBOUCHERVILLE,
Minister Pub. Inst.

MISCELLANY.

Little kindnesses.—A little boy had a hard lesson given him at school, and his teacher asked him if he thought he could learn it. The boy thought when his eye glanced over the hard words and strange figures, that it would be too difficult for him, and at first he hung down his head at the teacher's question, but after a few moments' consideration he looked brightly up, and said, " I think I can do it, sir, if you will allow my sister to help me.'

'Oh, certainly, my dear ; if your sister will assist you, she may.'

'Oh, yes, sir, she is always so glad to help me.'

That is right, sister, help your little brother ; and when you are doing so, you are binding a tie round his heart that may save him in many an hour of dark temptation.

'I don't know how to do this sum ; but brother will show me, said another one.

'Sister, I've dropped a stitch in my knitting ; I tried to pick it up, but is has run down, and I can't stop it.'

" The little girls face flushed and she watched her sister with a nervous anxiety while she replaced the naughty stitch.'

'Oh, I am so glad,' she says as she receives it again from the hands of her sister, all nicely arranged, 'You are a good girl, Mary.'

'Bring it to me sooner, the next time, and it won't get so bad,' said the gentle voice of Mary. The little one bounds away with a light heart to finish her task.

If Mary had not helped her, she would have lost her walk in the garden. Surely it is better to do as Mary did, than to say, 'Oh, go away, do not trouble me!' or to scold the little one all the time you are performing the trifling favour.

Little kindnesses cost noting, and beget much love.

Fun at home.—Don't be afraid of a little fun at home, good people ; don't shut up your homes lest the sun should fade your carpets and your hearts, lest a hearty laugh should shake some of the musty cob-webs there. If you want to ruin your sons, let them think that all mirth and social enjoyment must be left on the threshold when they come in at night. When once a home is regarded as only a place to eat, drink and sleep in, the work is begun that ends in gambling-houses and degradation. Children must have fun and relaxation somewhere. If they do not find it at their own hearthstones, it will be sought in others, and perhaps less profitable places. Therefore let the fire burn brightly at night, and make the home ever delightful with all those little arts that parents so perfectly understand. Don't depress the buoyant spirits of your children ; half an hour around the lamp and firelight of home blots out the rememberance of many a care and annoyance during the day, and the best safeguard they can take with them into the world is the unseen influence of a bright little domestic sanctum. For Canadian homes we recommend dancing (without dressing up for it), part singing, and for one to read aloud while the rest do needlework, carving, or drawing. Parents who deny their own inclinations to foster these innocent amusements are to our certain experience, rewarded by sons and daughters who love their homes, a sure sign of their loving their parents themselves.

Useful information.—One thousand shingles laid four inches to the weather will cover one hundred square feet of surface, and five pounds of shingle nails will nail them on.

One-fifth more siding and flooring is needed than the number of square feet of surface to be covered, because of the lap in the siding and matching of the floor.

On thousand laths will cover seventy-six yards of surface, and eleven pounds of lath nails will nail them on.

Eight bushels of good lime, sixteen bushels of sand, and one bushel of hair, will make enough good mortar to plaster one hundred square yards.

A cord of stone, three bushels of lime, and a cubic yard of sand will lay one hundred cubic feet of wall.

Five courses of brick will lay one foot in height of a chimney; six bricks in a course will make a flue four inches wide and twelve inches long ; and eight bricks in a course will make a flue four inches wide and twelve inches long ; and eight bricks in a course will make a flue eight inches wide and sixteen inches long.—*Prairie Farmer.*

In case of Burns.—If the victim of the accident is a woman, it generally happens her clothes are burning, the first thing to do is to put out the fire, by being very cool yourself, and then be prompt and energetic. Make her lie down on the floor and roll over on the flames until you can come to her assistance. Seize a coat, a blanket, or a piece of carpet, and after covering well your own hands—for another patient will not be needed at such a time—wrap her up and extinguish the flames by smothering them. When the fire seems to be out, drench the patient well with water, else the cinders of her clothes will burn her. Then give her a drink of something warm and stimulating and send for the doctor. In the meantime, if the doctor lives at a distance and it is necessary to do something before he comes, remove the clothes very carefully, cutting and ripping wherever necessary, and cover the burns with soft linen cloths, with a mixture of linseed oil and lime-water, or, if this is not convenient, with milk and water with a teaspoonful of carbonate of soda added to a pint of the mixture. Or, if this is not at hand, use warm water with plenty of soap in it. At all events keeps the parts, in case of either burn ef scald, thoroughly wet until the doctor comes. If the burn be small, you can dress it with some simple ointment—such as common whiting mixed with lard without any salt, or chalk and linseed, or olive oil mixed with vinegar so as to form a thin syrup. This last is a very soothing application. If burnt by lime, use vinegar and water ; if burnt by acids, use lime-water, or chalk, or soda.

Light and Animal Organism.—A favorite hypothesis is that the waking state is maintained in a great measure, if not wholly, by the constant summation of sensory stimuli; and that by keeping the centrifugal nerves continually in a state of activity, the waking state reacts upon the processes of assimi-

lation and decomposition throughout the body. This hypothesis rests upon a broad basis of circumstantial evidence derived both from physiological and pathological sources. Flaten has performed a series of experiments to ascertain directly whether stimulation of the retina by light really exerts any appreciable influence on the chemical change going on in the system (*Pflueger's Archiv*, xi., 4 and 5). Rabbits were made to breathe pure oxygen instead of atmospheric air; the carbonic acid given off from their lungs was absorbed by a solution of potash, and quantitatively determined. Light was admitted to, and excluded from their eyes, during alternate periods of 30 minutes; the proportions of oxygen absorbed, and of carbonic acid given off during the intervals of illumination, being compared with those absorbed and given off during the intervals of darkness. The ratio as regards the oxygen proved to be 116;100; as regards the carbonic acid 114:100 thus confirming the results long ago obtained by Moleschott with frogs—results vitiated by the untrustworthy methods of investigation he employed.

Oil as Fuel.—At a recent meeting of the scientific and Mechanical Society at Manchester, an interesting paper on the use of oils for fuel was read, from which we take the following:

In experiments as to the comparative value of coal and oil for the production of heat, a quantity of oil weighing less than five pounds was mixed with water in the manner proposed for us, in a suitable apparatus, and without the aid of artificial draft burnt for fifteen minutes with a flame 34 inches high and 25 wide; a superiority over a similar weight of coal which is self-evident.

We have therefore. not only a cheap, but, including foreign sources, as great a supply of fuel in oil as in the stone coal; occupying in transportation less space and more easily handled.

A further, not sufficiently prized, advantage in the use of oil is, that a more constant heat can be maintained, as with additional fresh coal to a fire there is a very considerable and rapid diminution of heat. Secondly being more easily controlled, a single man can mind quite a number of boilers, thereby lessening the present large force necessary. Thirdly, as a great advantage to steamships as preserving an equal calorific power, with much less weight.

Cheery People.—O, the comfort of them! There is but one thing like them—that is sunshine. It is the fashion to state the comparison the other end foremost, *i. e*, to flatter the cheery by comparing them to the sun. I think it is the best way of praising the sunshine to say that it is almost as bright and inspiring as the presence of cheery people.

That the cheery people are brighter and and better even than sunshine is very easily proved; for who has not seen a cheery person make a room and a day bright in spite of the sun's not shining at all—in spite of the clouds, and rain, and cold, all doing their very best to make it dismal? Therefore, I say, the fair way is to compare the sun to cheery people, and not cheery people to the sun. However, whichever way we state the comparison, it is a true and good one; and neither the cheery people nor the sun need take offence. In fact, I believe they will always be such good friends, and work so steadily together for the same ends, that there is no danger of either grudging the other the credit of what has been done. The more you think of it, the more you see how wonderfully alike the two are in the operation on the world. The sun on the fields makes thinks grows—fruits, and flowers, and grains; the cheery person in the house makes everybody do his best—makes the one who can sing feel like singing, and the one who has an ugly, hard job of work to do, feel like shouldering it bravely and having it over with. And the music, and mirth, and work in the house, are they not like the flowers and fruits, and grains in the fields?

The sun makes everybody glad. Even the animals run and leap, and seem more joyous when it shines out; and no human being can be so cross-gained or so ill; that he doesn't brighten up a little when a great broad, warm sunbeam streams over him and plays on his face. It is just so with a cheery person. His simple presence makes even animals happier. Dogs know the difference between him and a surly man. When he pats them on the head and speaks to them, they jump and gambol about him just as they do in the sunshine. And when he comes into the room where people are ill, or out of sorts; or dull and moping, they brighten up, spite of themselves, just as they do when a sudden sunbeam pours in--only more so; for we often see people so ill they do not see whether the sun shines or not; but I have never yet seen persons so cross or so ill that the voice and face of a cheery person would not make them brighten up a little.

If there were only a sure and certain recipe for making a cheery person, how glad we would all be to try it! How thankful we would all to do good like sunshine! To cheer everybody up, and help everybody along! To have everybody's face brighten the minute we came in sight! Why, it seems to me that there cannot be in this life any pleasure half so great as this world would be. If we looked at life only from a selfish point of view, it would be worth while to be cheery persons merely because it would be such a satisfaction to have everybody so glad to live with us, even meet us on the street.

People who have done things which have made them famous, such as winning great battles or filling high offices, often have what are called 'ovations.' Hundreds of people get together and make a procession perhaps, or go into a great hall and make speeches, all to show that they recognize what the great man has done. After he is dead they build a stone monument to him, perhaps, and celebrate his birthday for a few years. Men work very hard sometimes for a whole life-time to earn a few things of his sort. But how much greater a thing it would be for a man to have every man, woman, and child in his own town know and love his face because it was full of kindly good cheer! Such a man has a perpetual 'ovation,' year in and year out, whenever he walks on the street, whenever he enters a friend's house.

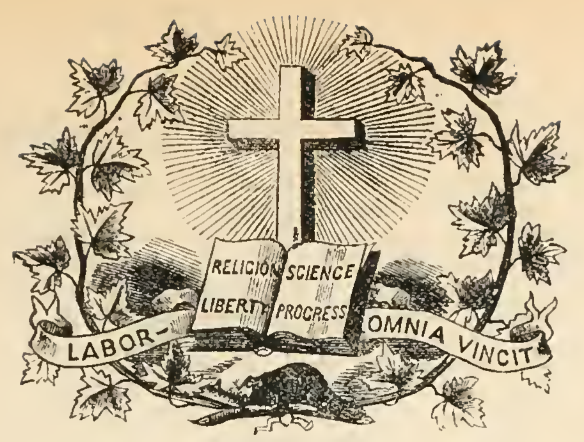
'I jist likes to let her in at the door,' said an Irish servant one day of a woman I know whose face was always cheery and bright, the face of her does one good, shure!—*St. Nicolas.*

Great Cyclopædias of the World.—The most voluminous cyclopædia in the English language is that of Abraham Rees (1803-1819), republished, with some additions, at Philadelphia (1810-1824), in forty-one large quarto volumes, besides six volumes of maps, and engravings. This was one of the most costly enterprises ever undertaken by any American publisher; and considering the comparatively small number of book-buyers at the period, it is not strange that it was ruinous to those who undertook it, and that it was finally disposed of by lottery. Recent cyclopædists wisely restrict themselves within much narrower limits. The following is an approximation to the quantity of matter contained in the principal cyclopædias in English which are now before the public:

Rees's Cyclopædia	41 vols.	4to,	40,000,000	words
Knight's English Cyclopædia	24 "	"	26,000,000	"
Encyclopædia Metropolitana	25 "	"	25,000,000	"
Encyclopædia Britannica	21 "	"	21,000,000	"
Appleton's American Cyclopædia	16 "	8vo,	13,000,000	"
Johnson's New Universal Cyclopedia	4 "	"	12,000,000	"
Chamber's Cyclopædia	10 "	"	10,000,000	"
Zell's Popular Cyclopædia	2 "	4to,	7,000,000	"

—*The Galaxy for July.*

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School Discipline.

Read by W. WELCH, Esq., M. A. before the College of Preceptors.

Mr. Chairman, Ladies, and Gentlemen,—I have been asked to read a paper before you to-night, similar to the one I had the pleasure of reading at the Conference of Teachers held at King's College ; and, presuming that there are some present who heard that paper, I may perhaps be allowed to point out that, whereas I then touched upon only one point in reference to discipline, I now propose to take a somewhat wider view. The point on which I then laid stress was not the use of externals in the maintenance of discipline, but the power of sympathy between the teacher and the taught.

Professor Laurie, in his recent address, told us that "The aim of the educationist is mainly discipline, and the aim of discipline is the production of a sound mind in a sound body, the directing and cherishing of the growth of the whole nature, spiritual and physical, so as to make it possible for each man, within the limits of the capacity which God has given him, to realise in and for himself, with more or less success, the type of humanity, and in his relation to others to exhibit a capability for wise and vigorous action."

Now, though I propose to touch but little on this side of the question, it is a side which after all is most important, and which must have due weight in the mind at all times when we are dealing with School Discipline. This description tells us that the aim of discipline is the training of the individual ; but to practical schoolmasters the word will suggest another idea as well.

Discipline, then, being a word of somewhat wide import, I will at once state that by School Discipline I wish to imply one or both of two things :

1. The mode or modes by which those at school are brought to conform to certain regulations and forms.

2. The state into which they are brought.

And here I must guard myself, by saying that my remarks have reference to boys' schools only, my knowledge of schools for the other sex being very limited. I may, however, be allowed to add that, as far as my experience extends, my estimate of their discipline is not very high, though I hear of golden opinions which are now being won by the schools lately established by the Girls' Public Day School Company.

Before, however, we enquire as to what this state of discipline should be, and how best it may be obtained, it is necessary for us to have clearly in our minds the objects of discipline. They are, I think, two :—

1. The training of the individual,

2. The maintenance of order.

And whereas the theorist will tell us that the former is the more important, we know very well that in practice it is the latter which we make our primary object : or, to put it more pleasantly and perhaps correctly, the latter, viz., the maintenance of order, will be the object of discipline, while the former, viz., the training of the individual, will regulate the means whereby the discipline is enforced.

In speaking thus I am contemplating large schools, for it is among such that what little experience I have has been mostly gained, and in these absence of order would mean hopeless chaos. In schools of small size more attention may be paid by the teacher to the training of the individual than is possible with large numbers. I do not say that it is so, but I presume it is possible. And do not understand me to mean that the training of the individual is carried out better in a small school—I believe it is very much the reverse ; the truth being that the training of a boys lies much

more in the hands of Nature and of the boy's schoolfellows than in that of his masters. Boys are not born good: they are born ignorant, and are ready to learn both good and evil. We do not believe, I am sure, that the majority of boys are morally bad; but we do know that evil counsels spread much more rapidly than good counsels in a school, and one or two black sheep in a small flock work infinitely more harm than a greater number do in a larger flock; in fact, in the latter case they are occasionally, if not trampled out, at least silenced, by their opponents. A boy, then, at a small school has a possible chance that more attention will be paid to his individual training on the part of his masters (I am supposing the small school to be well mastered); but he loses much that Nature unchecked and his numerous companions, from whom he can pick his set, will do for him in the way of training; and he will surely run a much greater risk of coming into contact with the black sheep, which I fear are never entirely absent for any length of time from any, even the smallest school.

There are, then, two things to be considered: (1) the individual, (2) the aggregate of individuals—the school. Neither must be sacrificed; both are equally important; for, such as the one is, such, to some extent, will be the other.

Now discipline, like all other arts, has its theoretical and practical sides, and in this world of imperfectibility the two will not always coincide. "The general practice of any ideal system of education is hopeless," says Mr. H. Spencer; "we are not good enough." But I suspect it is equally impossible to lay down a good theory of discipline. It is so complex a subject, so much depends on the character and temper of the master, the character of the boys, their ages, their numbers; that unseen power, sympathy, plays so important a part, and yet is so variable.

We, of course, all admit that a school ought to be in a good state of order, but our opinions differ widely still as to how it should be effected and maintained. I imagine that there may exist one of two kinds of discipline in a school:—

1. A sort of formal discipline, where everything is done with clock-work precision and uniformity, and the boys are always under the master's eye. There are, of course, various modified forms of this species.

2. The second species is informal in its nature. It is not absolute order, but there is enough order to allow of the carrying out the work of the school without inconvenience.

Of the two, the first is infinitely the easier to maintain, but in my opinion the latter is preferable by far. The clock-work discipline is, I think, neither necessary nor advisable.

The essence of the formal, or, as one might call it, military discipline, is the total absence of freedom, and consequently of the opportunity for self-government, and the *almost* total absence of sympathy. A system which necessitates such a terrible position as that held by the "pion," as the French boy calls him, must surely be hostile to English notions of freedom. To this some perhaps may be inclined to answer, that no such position exists in an English school. Does it not? Perchance not to quite such an exaggerated degree: but an assistant, or rather subordinate, in many a private school, is but little above the rank of a "pion." More than once have I heard "Principals" bewail their unrecognised profession, their position in society; and yet these very men, I know of a truth, themselves fail to recognise the profession when their assistants, and not themselves, are the individuals in question. Away with this system of military discipline,—an army with only one commissioned officer, a military discipline which culminates in a despotism,—where freedom is withheld from the teacher as well as from the taught,—where the teacher is expected to do so much work for so much pay, and there the contract ends,—where he has no more to do with the government of the school than a sergeant with the command of a regiment,—where he is, in fact, a non-commissioned officer, whose opinion and advice in the daily campaign is never taken or even asked.

In connection with this form of discipline, we have sometimes a system of drill in the schoolroom. It is met with commonly in primary schools, but it is not confined to them. To a stranger the sight of a large number of boys going through all the common-place actions of schoolroom life with uniformity and precision is somewhat striking, but it becomes monotonous; though with quite young children, I fancy the plan succeeds—they seem to find some sort of pleasure, or even amusement, in acting in concert, and it thus makes it easier for them to keep in order.

A friend of mine once went to visit a very large day-school where the formal system prevailed, and so much impressed was he with the appearance of the rooms and with the schoolroom drill, that he appeared to think that numberless blessings arose therefrom, and to wish that his own school, a boarding school, were in a similar state. I visited the school myself shortly afterwards, and was equally struck at first, but I had no wish to see the system introduced into any school with which I was connected. Moreover, when I came to consider the matter, I remembered that this was a day-school, and therefore it was natural that the class-rooms, not being living rooms, should present a much more tidy appearance than class-rooms in which boys lived from morning to night; the work too seemed to be done entirely on the paper-work and lecture plan; the rooms were filled with desks and seats; and there was, I believe, but one lesson going on in a room at once, and therefore there was absent that necessary amount of disorder and noise which is unavoidable when forms are coming up and going down; for I most emphatically protest against a form being regularly kept standing for a full hour.

One obvious objection to schoolroom drill is, that it inevitably comes to be looked on as an end instead of a means, and there consequently ensues a good deal of waste of time in order duly to attain an end which is no end. Moreover, it does not leave a boy to act for himself at all; it deprives him of all training in self-restraint during school, since the authority of the master is interposed at every point.

In connection also with this form of discipline, we have silence at meals, and silence with supervision in the dormitories; but of that I propose to speak further on. I need hardly refer to the baneful plan of inspecting correspondence between boys and their friends, as such a piece of despotic surveillance is, I suppose, quite out of date.

But let us a take a glance at the other form of discipline which I have mentioned. The general spirit of this is freedom, and self-government. It is the form which which exist in most, if not all, Public Schools. Too often, under the other system, the boys regard their masters in the light of natural enemies; but here there is such freedom of intercourse between masters and boys,—the former frequently taking part in the games of the latter,—that such a view would be untenable. This intimate association does not in the least diminish a boy's respect for a master, nor does it impair

a master's authority, unless he unwisely permits that excess of familiarity which breeds contempt; for there are men, we must remember, who would fail under any system. Here we find subordinates, who are called Assistant Masters, actually considering themselves the colleagues of the Head Master, and actually adressing him openly without the title Mr. or Sir. I have said that the general spirit is freedom and self-government; and, as regards the individual, what is the object of discipline if not to produce beings imbued with a spirit of obedience, beings capable and ready for self government? Hedge your child round about with numberless rules, put him under a constant espionage; and, as I have said, you deprive him of all opportunity of self-restraint, you neglect the whole aim of discipline as regards the individual, you do not even teach him how to submit to the government of others, as the world will count government. Let the rules of a school be few, broad, and traditional. Our boys sent forth into the wide world will find that there is no elaborate code of petty and detailed regulations read out three times a year for their moral guidance.

In the class-room as much freedom is allowed as is consistent with good work. There is no attempt at drill; but, of course, freedom must not be allowed to degenerate into licence. M. Jules Simon says that he thinks a quarter of an hour of liberty between each lesson would do children much good, and would do no harm to discipline. In English schools, where our hours are comparatively short, we can hardly afford so long an interval; but I quite agree in the principle, and I think it a good thing to let boys "kick up a row," as they call it, for four or five minutes during changes of lessons. This freshens them up, and puts a little more life into them. I have, at times, on a hot summer's afternoon, proposed to the boys a short interval in the middle of a lesson for forty winks, to which they have graciously acceded; and after a few minutes we have jumped on our legs again to wake ourselves up, and have continued our lesson with far more vigour than we betrayed before. This may shock those who consider themselves stern disciplinarians; but it is infinitely better than that the master should fall asleep by himself, and, as a friend of mine did once, fall back off the stool, and in his effort to save himself pull the desk over on the top of him.

In most instances, as soon as a master enters a class-room in lesson hours, there is silence; though, perhaps, through having to get books out of his desk, or what not, he is not ready to begin work for a minute or so. It is a question, in my mind, whether it is not as well to wait till one really wants silence, and then call for it by voice or other signal. Boys will thus understand that the reason for silence is not the presence of the master, but the desire for work. Some men, I believe, feel it derogatory to their dignity if boys continue their games and noise in their presence; for my own part, I cannot endure to think that their pleasure is to be checked simply because I happen to be present. During preparation silence is no doubt imperative, unless it take place under the eye of a master, in which case he can safely use his discretion. I have more than once tried to adopt Dr. Andrew Bell's system of boy teachers in my form; but I found that, in my absence, it was often the cover for much illicit conversation, and thus brought a good deal of extra trouble and annoyance on the prefect in charge of the form.

During meal times, and in the dormitories, the same spirit of freedom should prevail; but, as in a class-room boys cannot be allowed indiscriminately to leave their places, or absolute disorder would soon be the consequence, so it must be here. I know few things more painful than to be for any length of time in a large dining-hall full of boys, where the silent system is enforced. A meal with one's friends in constrained silence loses, all its pleasure and half its digestibility. Better a dinner of herbs where conversation is, than a silent banquet off the fatted calf! Some may think that I should not argue thus if I had ever tested the plan practically. I am going to make a confession. I *have* had experience of the plan, to no small extent—the numbers under our charge being over 300; and I have, at times, suffered more dyspepsia from the worry of it than I care to say. But what then? It has probably been my own fault. I have not shown sufficient vigour and firmness, freedom has been allowed to verge on licence, and then one's troubles begin. It is merely a salutary visit of the goddess Nemesis, it is not fair to blame it on the system.

I have already said that the formal system of discipline is far the easier to maintain; but in every action of life is not the extreme more easy of accomplishment than the mean? In the former, no exercise of judgment is necessary; in the latter, how great! Reading during meals is a moot point. There are many arguments against it—it is not good manners, and does not conduce to healt; and, as far as I know, only one for it—expediency. But we know what weight that argument has. Where there are large numbers, it is not always possible for them all to be served at once; and, in addition to that, boys vary as regards appetite—some eat much, some eat little (unhappily for the purveyors, the latter of class of boys are in a decided minority!)—and yet they cannot be allowed to leave the dining-hall irregularly as they finish—the disorded would be too great; besides there is a lesson to be learnt of sacrificing self to society by waiting contentedly till all have finished. Conversation will not always command. What is to be done? Admitting the necessity, I think the matter may be regulated thus:—Where the meal is of fixed length, such as half-an-hour for tea or breakfast, books might be allowed; but at meals, where the boys are dismissed as soon as they have finished, I am of opinion that they should be forbidden. Their presence, too, is apt to disorder the arrangements of the table, which at dinner is more extensive than it is at other meals. These you will perhaps say are minor details, but you will admit that these details have much to do with the subject of my paper.

The discipline in the dormitories is of great importance. As I have already said, I would here have the same freedom as in the hall. The minimum number of beds in a room I place at three; but I think twenty a much better number. The order of the dormitory should be in the hands of some senior boy or boys—call them monitors, prefects, præpostors, or what you please. By this means there is always some one present in authority, whereas, when a master only is responsible for the order, "high jinks," at least, are sure to go on in his absence.

It may be taken as a general rule, that there is more chance of mischief being in progress when boys are silent than when they are making a noise. I am, therefore, an advocate for freedom of speech in the dormitory, though a silence of some few minutes should be enforced, both to show that boys are expected to say their prayers, and to give them an opportunity of saying them in peace; for, strange as it may be thought, there still exist schools where boys are pelted with slippers if they dare to kneel at their bed-sides; at least a boy friend of mine tells me of one with 40 or 50 boys where this used to happen when he was there a couple of years since. A light in the dormitory throughout the night is a great safeguard of order.

Before I leave this part of my subject it will be well to say a few words on a very important point in school discipline—punctuality. It is very necessary that we masters should set a good example in this particular. An unpunctual master makes unpunctual boys; and the worst of it is, that it is not he who really has to suffer for his fault, it is his colleagues who *are* punctual who suffer; for the boys become demoralized, and get into a habit of being just behind time, and the master who is always on the spot for his Form or Roll-call feels naturally irritated thereat, whereas in all probability the man who is really at fault does not from his nature receive any irritation. A habit of unpunctuality in boys should, I am inclined to think, be nipped at once by very strong measures. No one can possibly foresee the damage it may cause in after-life. Let a high standard of punctuality, then, be an important item in school discipline. In looking through the prospectus of one of the upper middle-class schools of late foundation, I find this paragraph, "A whole holiday is also given once a month to those boys who have passed a satisfactory examination at the Warden's review, and who have not missed roll-call more than six times during the month." Now this I call a very low standard. In my opinion, a boy to be so rewarded ought not to have missed a single Roll-call during the month, or, perhaps, allowing for accidents, but one. In connection with this subject of punctuality, another difficult question occurs to me. How about taking boys' excuses? I have heard men say, "Oh, I never take any notice of excuses." I really think it would not be a bad plan never to receive them—it would save a great deal of trouble, and, perhaps, much lying; but was anyone ever able to carry out the plan? I have made a determination more than once to try it, but have had to give in, because fear of doing an injustice has been too strong for my resolution. "Weak man," whispers some one, "Nature listens to no excuses." True; but, did I always follow Nature, I should be unnatural.

And now I must pass on to another part of my subject, and inquire by what means this school order can be best produced and maintained. It is, indeed, a very difficult question, and I approach it with considerable diffidence; indeed the whole question of discipline is an unpleasant one for a practical school-master to treat of in public, since most of us are standing examples of failure of plans. Moreover, the writing thus in the middle of a busy school Term, seems to me like an attempt to write a description of a battle on the field, while the fight is going on around. One's ideas and feelings are dragged first to one side and then to another, and one feels inclined to crowd the page with details and incidents which, however instructive and interesting—for nothing interests like personal anecdote—might here be in as questionable taste as the recent publication of the Greville Journals. I well remember how on a similar occasion, some time since, I introduced an anecdote to illustrate some remark I had made in which a proper name should have appeared. I ran over the whole alphabet in my mind, and at last fixed on a letter for an initial which I thought was safe from misconstruction. What was my horror on being reminded, after I had read the paper, that the name of a friend, whom I had not in my mind at the time, but to whom my anecdote might have applied, began with the unfortunate initial I had chosen. Luckily the paper did not fall within his reach, or, doubtless, he would have fitted the ready-made cap.

I have said that the training of the individual will regulate the means by which the discipline is enforced. And here let me pay a passing tribute to Mr. Herbert Spencer. His chapter on Moral Education I consider to be most valuable,—not perhaps because it contains anything new, but because it lays down clearly the principles on which we ought to act, if we wish to produce self-governing beings. "To educate rightly is," he says, "a complex and very difficult thing." Well, if it is so with the individual, how much more with a large body. We must take into consideration, too, the fact that the majority of children who come to school have not been educated by parents who have studied and striven to copy Nature's method. It is my opinion that parents, generally speaking—and I by no means exclude schoolmasters themselves—are bad educators of their own children. Their affection warps their verity. Weak love impels to the former; love, mingled with disappointment at unrealized hopes which ought never to have been indulged in, produces the latter.

Those who have read Mr. Spencer's Essay will remember that all his examples are drawn from home life. Had they been taken from school life, I think we should have seen the impossibility of carrying out to the letter his dictum, that the natural reactions, the true consequences of children's conduct, must be neither warded off, intensified, or have artificial consequences put in place of them. Now, that this dictum is pleasant, is admirable, is theoretically correct, few may perhaps deny; but will any master in a large school tell me that it can be worked? Of course it is not very probable (to use Mr. Spencer's examples) that a mania would seize a hundred boys to lay hold of fire-bars, thrust their hands into candles, or spill boiling water over themselves; but one can imagine a rage for gunpowder, tobacco, or even gin and water. Nature says, "Let them be burned, let them be sick, let them have headaches and other pains." By all means, I say. Nay, let Ossa be piled upon Pelion; let them have all these consequences at once; and yet we must still further intensify the consequences, because not only have the individuals themselves to suffer for their sins, but it is necessary that the safety of the community be consulted; it is necessary, moreover, that an example be set to deter others from following in the steps of the offenders. We know how hard a thing it is to learn from the experience others, and we recognise how much we lose by our inability so to learn. I think boys may be assisted by putting an example before them of intensified consequences, though the natural consequences should not only be disguised, but should be carefully pointed out.

I have at times looked into a journal, boasting the largest circulation in the world, which deals in the romantic, the sensational. I might even add the fictitious—a journal which delights in the wonderful, whether at the distant Khiva, or on our own shores: and there I have learnt that there exist schools in which punishments are unheard of. Besides feeling rather doubtful as to the fact, I do not think such schools are to be commended. I am certain that large boarding schools cannot be carried on without punishments; nor do I think it advisable that one of the most valuable means of education should be ignored. Of course, I admit that the better the school, or the master, the less the punishment; but, before punishment should disappear, both should be perfection.

Among some of my early notions on discipline was one that it is much better to prevent a boy breaking a law, than to punish him for breaking it. In most cases I hold the reverse now. Moreover, I used to think that it was quite sufficient to tell a boy not to do a thing again, and quite unnecessary to punish him for

s first offence. I have since discovered that telling a boy not to commit a certain act again, may, if one's influence is sufficient, prevent him from repeating it; but it has very little effect on his 300 companions. I see two or three boys lying on the damp ground; I tell them to get up and not to be so foolish again. Ten minutes later I come by and find three or four others doing the same. But suppose, on the other hand, instead of telling the first offenders to get up, I make an endeavour by means of my walking cane to counteract the chill which I fancy is creeping over their foolish limbs; I know that boys have so much sympathy with one another, that these will give a warning to their companions about to commit the same offence, of the unpleasantness of the reaction. No, we cannot always leave the punishment in Nature's hands, because of our own imperfections. Nature is patient, and can afford to wait: we are impatient, and demand retribution at once, as a warning to others. Thus we intensify the natural consequences in some cases, while in other cases, as M. Spencer allows, where there is a risk of broken limbs, or other serious injury, forcible prevention is necessary, and this, in many cases, can only be done by interposing artificial consequences at once. Let us take a case of habitual idleness. Nature's own punishment for this is not felt till years after. This will not do for us, because of the seriousness of the consequences, and because of the delay: we accordingly impose a penalty founded on Nature's principle, and declare that the inevitable shall not be avoided: if an allotted task is not done at one time, it must be performed at another. But this course of action cannot long be continued with the same boy, and artificial punishments must be had recourse to. The objections to artificial punishments I quite feel. They irritate both sides: the boy fails to see the connection between cause and effect, and feels aggrieved; the master is irritated because the result produced is so slight, and because he perhaps feels that he is not quite sure he has punished wisely.

But there is a more important objection to them, for they do little permanent good, and when the power of imposing them is removed, the check is at end. There are some perhaps who would raise the same objection to personal influence, in a slight degree, and it must be allowed to have some weight. Our duty, of course, is to teach our boys a rule of action which will guide them when all domestic and school restraint is removed.

Having, then, arrived at the conclusion that artificial punishments are necessary in a school, I would enquire how they can be made most effective and least objectionable. I think the true principle is that they should be as near as possible akin to the offence. Many actions which are a pleasure when indulged in voluntarily, are a punishment when enforced. I remember being told by a Captain of a Training Ship in the Thames, that when he caught any of the boys chewing tobacco, he punished them in kind. On one occasion, a boy declared that he had rather go without his meals than give up the practice, the Captain took him at his word, supplied him with strong Pigtail, instead of food, and saw that he chewed it. The culprit ultimately changed his mind. So I have at times found boys chasing one another up and down staircases, out of bounds, and have made them stand where I have found them for a couple of hours. I have never seen other boys playing thereabouts, so long, at least, as my scarecrows have had to remain; and I think the said scarecrows have appreciated the quasi-natural form of the punishment, and have felt that I was not unfair.

Severity is no essential part of a good punishment, but certainty and quickness is. A punishment which is spread over a long period is more irritating, but not nearly so effective as one which is soon over; and this is, to my mind, one great argument for the use of the cane. My experience is that boys dislike the pain inflicted by that weapon, but that they do not dislike it as a form of punishment; and on more than one occasion, when I have had to set an imposition of some kind, boys have asked me if they might not have so many cuts with the cane instead. The journal to which I have before referred, is, I am told, most strongly opposed to all corporal punishments, as being degrading and brutalizing. I must confess to thinking that there is a great deal of sentimental nonsense talked and written on this score. If I were not a school-master, I could, I imagine, build a very pretty rose-water theory of discipline, in which the rod and other such punishments would entirely disappear; but my experience leads me to think that I should violate my principles as soon as I came to put them into practice. Not that I approve of the indiscriminate use of the rod in the class-room—the effect in the hands of most men is very pernicious, though the patient temper of the few may well be trusted. There *are* boys to whom the rod does a moral injury, there are others whose natures seem to require it. To discriminate wisely is our difficult but imperative duty; and this duty is rendered doubly difficult by the necessity we are under of both being and appearing just. If half-a-dozen boys have committed the same offence, they will think it very unfair if the same punishment is not given to all: and yet the punishment set, say it is so many lines, may take one boy four times as long to learn as it will another. In such a case it is wise to be unfair in order to appear fair; but with single cases the boy's nature and capabilities should be taken into account. A disgrace which will cause one boy's amusement, will break another boy's heart. I can call to mind a remarkable and somewhat amusing instance of the ignoring the differences of natures. Some 20 years ago I was at school at a fashionable watering-place in the south of England, and in the same town some near relatives were being educated at an "Establishment for Young Ladies." On more than one occasion I spent the evening with them, and I recall with singular pleasure—for now, even as then, I love this world's sweets—the brimstone and treacle which came round at prayers for the moral and physical improvement of all. I say "moral improvement" advisedly, because such was the simplicity of the *régime* which obtained in this school, that when a girl was fractious or had scored a certain number of bad marks during the week—I believe the cause was not taken into consideration—a dose of Gregory Powder was prescribed for the delinquent. One smiles when one thinks of this piece of quackery, though for my own part I suspect that, from the quantity and quality of the exercise then in vogue at girls' schools, in nine cases out of ten the supposed cause of the misbehaviour was the true one.

Let me now say a few words on a more serious form of punishment—expulsion. The question as to whether a boy ought to be expelled from a school or not, is often a most difficult one to decide. The gain and loss to the school have to be weighed against the gain and lost of the individual. It is so important a matter from all points of view, that I think in most cases the Head Master will do well to consult his Assistants—his own conscience will thus be set at rest, and a mistake will seldom be made. A despotic Tory friend of mine used to a very summary mode of procedure. If a boy came to him who seemed inclined to break the rules of his

house occasionally, and to be a somewhat idle disposition, he used to say that his school was not a reformatory, and that the offender had better go. I cannot reconcile myself to the belief that the Sage quite did his duty.

To find really good artificial punishments, is no very easy matter. Detention, learning by heart, writing lines, and such like impositions, are all open to the objection, that they deprive boys, and sometimes masters, of exercise, and therefore often increase the evil which they are designed to remedy ; for worry and over hours of work produce dulness and nervous irritability, in both master and boys. Writing lines is open, too, to the objection that it spoils the handwriting. This may be obviated by letting the quality of the writing count as quantity—a plan I have heard suggested dy Mr. Quick. Suppose, for instance, 500 lines have been set as an imposition ; it is given up in batches of 50, and, according to the style of writing, each batch is valued at a greater or less number than the actual quantity. Another plan which is sometimes adopted, is to set so many pages of roundhand in a copy-book—this cannot very well be scamped. If the system of detention *pur et simple* be adopted, I am of opinion that it is most effective when a number of boys are kept in silence without the consolation of even a lesson book ; the being compelled to sit perfectly idle without a chance of going to sleep, is most irksome to boys. I mention this plan without recommending it. There is, however, one form of punishment to which the preceding objections do not apply, and that is drill under a sergeant for an hour or half-hour, as the case may be. This has all the advantages of detention without depriving boys of their exercise ; indeed it is physically advantageous.

And now let me add a few words regarding ourselves. Let us take care that all our orders are reasonable, and not lay on our boys' shoulders burdens greater than they can bear. Let us be firm, consistent, and unflinchingly just. Let us, if we would have a mastery over others, have a perfect mastery over ourselves—not only over our tempers, but over our tongues. One ill-advised sarcasm may cause more ill-feeling than any amount of impositions. Let us, at all times, beware of behaving as passionless instruments when punishing the wrong-doer ; by so acting we deprive the punishment of more than half its sting. Let us be kindly affectioned to all ; but while affection alone is our true guide for younger children, unwavering politeness is a neverfailing check with elder boys.

In conclusion, I would claim your indulgence for a somewhat rambling paper, which of necessity has been put together at odd times. But for an event, which we all alike regret—the death of our friend, Professor Payne—I should, I am sure, have been able to have offered you something more worthy of your consideration. It was his intention to read a paper himself on School Discipline, had not illness prevented him ; and after I had been asked to undertake the subject, I was contemplating a visit to him to learn his views, when I heard that he was no more. I share with you the feelings of regret at the loss of so carefull a thinker and so earnest a man ; but, as an old pupil of his, I claim to feel a greater loss. To me he was ever all kindness, all gentleness, and by his death has been snapped a tie of such sort as can never be re-woven into my life. His example of persevering industry, of burning enthusiasm, stands brightly before us ; and so firmly has he impressed on the minds of those who knew him the maxims of the science he so dearly loved, that of no man more truly can we say, "He being dead yet speaketh."—*The Educational Times.*

SCHOOL EXAMINATIONS.

School of the Protestant School Commissioners—The Model School, Catholic Commercial Academy, &c., &c.

Yesterday (29th June) was a busy day for those in charge of departments in the various city and suburban educational establishments. The schools of the Protestant Board of School Commissioners have taken a new departure from the time-honored system of examinations and taken the time-saving plan of holding the exercises *en bloc.* Victoria Skating Rink was engaged for this purpose, seats were provided, a platform raised at the far end, and altogether the preparations were on a large scale, more than three thousand young pupils being present. In the Model School, the Catholic Commercial Academy, and other institutions reported below, the proceedings were of the ordinary character, but characterized by increased interest shown in the large attendances.

PROTESTANT COMMISSIONERS' SCHOOLS.

Nearly Four Thousand Children Assembled—Dorchester Street, the French, Sherbrooke Street, Panet Street, British Canadian, Point St. Charles, Mill Street, Royal Arthur, Grace and Ann Street Schools take part in the Distribution of Prizes.

Yesterday morning, between the hours of nine and ten o'clock, the children under the jurisdiction of the Protestant Board of School Commissioners assembled at their respective schools, prior to proceeding to the Victoria Skating Rink, to take part in the distribution of prizes. Each school, under control of its head master and teacher, was provided with vehicles to convey the children to the Rink, and the sight *en route* was an exceedingly interesting one. On arriving at the Rink, the scholars filed into the places allotted to the schools, temporary seats having been erected for the purpose, and the name of each school indicated on large placards, enabling the teachers to find their places without any confusion. Shortly after 10 o'clock the chair was taken by Principal Dawson, LL. D., F. R. S., &c., and on the platform were Professor Robins, Superintendent of the Protestant Commissioners' schools, the Rev. Messrs. Welles, of the American Flock of Knox, and Garden of Olivet churches, Mayor Hingston, Aldermen Stephens, Holland and Clendinneng, Mr. Dunkin and Mrs. Dunkin, of Point St. Charles school, Dr. P. Kelly, Mr. Lunn, Mrs. Scott, and many others.

The Rev. Mr. Welles, of the American Presbyterian Church, opened with prayer of thanks to the Almighty for the many blessings enjoyed by the children, and expressive of a desire that their after lives should be now moulded in the schools in a direction that would be to Him a glory and thanksgiving for His tender mercies.

Principal Dawson's opening remarks placed the number of schools, inclusive of three High Schools, two Hebrew Schools and the Art Schools at 16 ; number of teachers in High School 9, Preparatory High School 6, High School for Girls 13, Hebrew Schools (paid for by the Protestant Commissioners) 2, Art School 1, and City Schools 81 ; total, 112. The number of pupils he stated as follows ;—High School 179, High School for Girls 162, Hebrew Schools 87, Art School (variable) say 75, City Schools 3,114 ; total, 3,825. Commenting upon the numbers in the City Schools, the speaker hoped

next year the number would reach 4,000. He went on to speak of the organization of the schools in complimentary terms, alluding to Mr. Lumas, one to whom the children and friends of education owed much for the success of the school system, and whom they had therefore reason to thank. Ald. Stephens' presence on the Board of School Commissioners, he was sure, augured well for still greater success. Dr. Jenkins, another member of the Board, was absent in England working for their interests, and another of the Commissioners, the Rev. Dr. McVicar, was absent attending to the business of the church, but not unmindful of them in doing so. In this connection Dr. Dawson alluded in the strongest terms to Dr. McVicar's untiring zeal and energy in his duty as a member of the Board, but for whose labors the Commissioners' schools could not have reached their present efficiency. He had heard a fortnight ago that there was to be a change in the Board, and that Dr. McVicar was to be removed. He trusted that such was not the case, as Dr. McVicar would be a great loss to the Board if taken from it. His great experience and devotion to the cause of education could not well be done without. Alluding to the system and organization of the schools he pronounced Professor Robins as one of the foremost managers of education in Canada or any other country (prolonged applause), and the pupils owed him a debt of gratitude they could never repay- And then the noble army of teachers. To their efforts was due the fact that scholars in Montreal had in their possession elements of an elementary education that no other country could surpass. The prizes that were to be given away were a gratifying exhibit of the success of the teachers' efforts, and were a uniform test of the year's work done. He did not wish it to be supposed that the prizes were the main thing in the exhibition. They were subordinate to the showing that another year's work in the grand educational system of our Canada had been done, and done well, as the exhibit showed. Applause.) Dr. Dawson then presented the prizes to the successful children filing along the front of the platform, and being introduced by the head master of their respective schools, commencing with Dorchester Street School and ending with the Art School. During the process of giving prizes the children united in singing "We Are Coming, Happy Children," and other school songs.

THE PRIZE LIST

is a long one, and the scholars came filing past the chairman, who gave each little one the prize allotted to him or her as the case occurred. The following is the list :—

Note.—To avoid repetition the names of subjects of study are abbreviated as follows : A for arithmetic, g p for general proficiency, r for reading, sc for Scripture, punc for punctuality, wr for writing, dic for dictation, geog for geography, Fr for French, geom for geometry, alg for algebra, gram for grammar, mor for morals, Lat for Latin, h for history, mu for music, men for mensuration.

DORCHESTER STREET SCHOOL.

FIRST PRIMARY.

Ellen Mortimer, R; George Donaldson, Wr; Robert Donaldson, Sp and G P; E Arless, A, Punc; A McShane, Sc.

SECOND PRIMARY.

G Arless, R, G P; Henry Cohn, Wr, Sp and Fr, G P; Flora Brown, Sc; Fan Le Messurier, G P; F Pridham, Punc; A Sutherland, Punc.

FIRST INTERMEDIATE.

Elizabeth Pridham, R; Ida Graham, Wr; A Taylor, Sp, A, 1st G P; C Sutherland, Punc; A Hillman, Punc.

SECOND INTERMEDIATE.

Josephine Belair, R; Jno Darling, Wr, Punc; Isabella Dodd, Gram.

SHERBROOKE STREET SCHOOL.

FIRST PRIMARY—BOYS.

John Ringland, R, A, Sc, G P; J Parker, A; J Robertson, Sc. and second G P; A McDonald, Punc; J Burrows, Punc; H Rogers, G P, first.

FIRST PRIMARY—GIRLS.

Euphemia Ritchie, R; Martha Carswell, Wr and Sp; Augusta Austin, Wr: Agnes Kempt, Sp. G first; Laura Labelle, Punc; Ella Brown, Punc; Fanny Wiggins and Margaret ——, G P, first; Carrie Higham, G P, second.

SECOND RRMIARY—BOYS.

Charles J Robertson, A, G, P, first; W Bennett, A; D Phillips and G Fletcher, Sc; Thos McGuire and Alexander McKeown, Punc; F Thompson, first G P; D Phillips and Thos Carlyle, second G P.

SECOND PRIMARY—GIRLS.

Sara McLaren, R; Alice Wilson, G P, second; Margaret Cassidy and Nellie Gibson, Wr; Esther Clarke, Sp, Fr, G P, first; Ada McGown, Sp; Margaret Cowan, A; Margaret Darling and Nellie Collins, Punc; Laura McLaren, G P, first; Jane Bremner, G P, second.

FIRST INTERMEDIATE—BOYS.

W Mussen, Sp; E Barlow, A, Sc, Punc; E White, Punc; George Flannigan, G P, first: G Armour and A Martin, G P, second.

FIRST INTERMEDIATE—GIRLS.

Rachel Heron, R; Mary Riva, Sp; Eliza Cregg and Annie Dillon, Wr, Ellen Kempt, Sp, Geog, Punc. G P, first; Elsie Philbin, A; Ella Lancaster, Sc; Eugene Gallet and Eveline Hone, Fr; Catherine Pete, Punc; Mary Robinson, Punc and G P, second; Louisa Phymister, G P, second.

SECOND INTERMEDIATE—BOYS.

W Lavers, Punc; K Falconer, G P, second.

SECOND INTERMEDIATE—GIRLS.

F Higham, R; Annie B Denovan, Wr; Eliza Graham, Sp; Grace Darling, A, Fr, Gram, G P; E Kempt, Sc, Punc, G P, first; Sarah James, Geog.

FIRST SENIOR—BOYS.

Alfred LeMesurier, Sp, H, Alg; Urquhart Colquhoun, Lat, G P, second; W Peat, Punc.

FIRST SENIOR—GIRLS.

Elizabeth Connor, R, Sc; Margaret Blair, Wr, Geog, Geom; Carrie Roy, Punc.

SECOND SENIOR—BOYS.

John G Campbell, R, Wr, Sp; Geo Falconer, A, Mens, Fr, Geog, Lat, Alg, Geom, Punc, G P, first; Hugh Cowan, H; Isaac Hargrave, Punc and G P, second.

SECOND SENIOR—GIRLS,

Jessie LeBeau, Mor, Gram, Physiology, Mu, G P, first; Agnus Gilmour, Punc.

PANET STREET SCHOOL.

SECOND SENIOR CLASS.

Jessie Reid, A, S, Mens, G P, Geo; Flor Ritchie, R, W, Botany, Mu; Catherine Tyrell, Sc; Corina Coursolle, Fr, Gram; Elizabeth Reid, H, Lat, G P; A E Taylor, R, Sc, Geom, Mech, G P, Punc; Louis Richard, W, Sp, Alg; Stewart McNaughton, Punc.

FIRST SENIOR.

Jemina Roger, A, Sc, Alg, Geom, H, Gram, Lat, G P; Sarah Little, W, G P, Geo; Katie Ried, Sp, Punc; Rachael O'Connor, R; Herbert Thompson, R, Punc; A McNaughton, Sp; A Wickens, second G P; E Charton, W, Fr, G P, Geog; John Trudeau Sc.

SECOND INTERMEDIATE—GIRLS,

Annie Kennesten, Fr, Geo, Gram, G P; Jennie Whiting, R, Sc; Louisa Philips, A; Mary Nelson, W; Anna Bulling Sp; A Roberts. G P; Mary Ennis, Punc.

BOYS.

John Hatton, Sp, Sc, Gram, G P; W J Kyle, W, A, Fr, G P; A C Bulling, Geo; C E F Bennett, R; J O,Connor, Punc.

FIRST INTERMEDIATE—GIRLS.

Emma Rodgers, Fr, G P, Punc; C McDonnald, Sc, Geo, G P; Alice Sims, A; Florence Warren, W; E Robinson, Sp; M Taylor, R, Punc.

BOYS.

Allan Golnson, A; Albert Mason. Geo; W Skelly, W, G P, second; E Gallagher, Punc.

SECOND PRIMARY—GIRLS—FIRST CLASS.

Ida Ward, Hunc; W Houghton, Punc; W Spooner, Fr, G P; Florence Taylor, A; Annie Littlehales, Sp, G P.

BOYS.

Lavid Kyle, R; Geo Peachy, W; W Dyer, Sc.G P; Geo Tester, Punc; F Barlow, G P.

SECOND CLASS—GIRLS.

Mary Richardson, R; Sara Peatman, W, Sc, G P; Eliza Smith, Punc; Nelli Hatton, G P.

BOYS.

Joseph Plomendon, Punc; John Lowe, G P; W Smith, G P.

FIRST PRIMARY—FIRST CLASS.

Eva Greaves, R Sc, G P; Rachel Neill, Sp, G P; Maria Shippel, Punc; F Saville, W, A, G P, Punc; J Tyrrell, G P.

SECOND CLASS.

Jennie Ritchie, R; Mary Larue, A; Emma West, Sp; Maggie McAllister, Punc: Florence Sewell, G P; Maud H Dawes, G P; H Kollmy r, Sc; J Cunningham, Wr, G P; Chas Holmes, Punc; Fred Gslibert, G P.

BRITISH AND CANADIAN SCHOOL PRIZE LIST.

FIRST PRIMARY—GIRLS.

Ellen Cairns, prize in A and G P, 1st; Janet Johnson, A and G P, 1st; Charlotte Pearcey, R and G P, 2nd; Elize D'Olier, G P, 1st; Evelyn Orr, G P, 2nd; Mary Simmonds, Sc; Annie Jamieson, Punc; Catherine Simmonds, Wr: Alice Hankins, Sc; Margt Hudson, Dic; Margt Rankin, Punc; Maria Ferguson, G P, 2nd; Fannie Wiggins, Punc.

FIRST PRIMARY—BOYS.

Aubrey Eneas, A and G P, 1st; Wm Cunningham, R, Sc, Dic, Punc and G P, 2nd; Colin Cathels, G P, 2nd; Jas Sutherland, R Geo Matschke, Wr; Malcolm Ross, Dic; Samuel Usherwood, Punc; Henry Hubbert, Wr; John Manuel, Punc: John Smyth, G P.

SECOND PRIMARY—GIRLS.

Mary Agar, Sc, A and G P, 1st; Alice Fonter, A and G P, 1st; Henrietta Shepard, G P, 2nd; Harriet Snepard, G P, 2nd; Georgina Stanfield, R.

SECOND PRIMARY—GIRLS.

Martha McGowan, Wr; Emily Pelland, Fr; Ellen Jay, Punc; Isabella Craib, R; Ellen Henderson, Wr; Elizabeth Bishop, Sc; Mary Lawrence, Dic; Ellen Law, Punc.

SECOND PRIMARY—BOYS.

Wm Schofield, Sc, Wr, and G P, first; Thos Walster, Dic and G P, second; Wm Bell, A, Dic and Punc; Edwd Foote, R and Punc; Robert Foster, G P, second; David Murdoch Punc.

FIRST INTERMEDIATE—GIRLS.

Eliz Lawrence, Sc and Dic; Louisa Sexton, G P, second; Emily Cunningham, R; Florence Radford, Wr; Florence Dowling, A; Hannah Robinson, Punc.

FIRST INTERMEDIATE—BOYS.

Frank Crossley, Sc, Geog and G P, second; John Lane, Wr and Punc; Edward Lamb, A; Jas Miller, R; Wm Watson, Dic.

SECOND INTERMEDIATE—GIRLS.

Ellen cole, A, Dic, Geog, Gram and G P, first; Eliz Cook. R, Fr, Punc and G P, second; Jane Peacook, Sc and Wr.

SECOND INTERMEDIATE—BOYS.

James Suttle, Geog and G P, first; Alex Tolmie, Dic and G P, second; Joseph Barck, A and Fr; George Hunter, R; John Boyd, Sc; Edward Broders, Gram; Alex Thomas, Punc.

SENIOR—GIRLS.

Louisa Cole, A, Mor, Punc, Wr, Geom, Alg and G P, second: Eliza Cathels, Gram, Lat and G P, first; Maud Herring, R.

FIRST SENIOR—BOYS.

Charles Withycomb, Dic, H and G P, first; Charles Ross, Punc.

SECOND SENIOR—GIRLS.

Christina Galt, Gram, Lat, Punc and G P, second; Helen Rorke, Mu; Matilda Wilson, Wr.

SECOND SENIOR—BOYS.

William Studer, R, Dic, Geog, H, Alg, Mens, Punc and G P, first; George Rorke, Physics and Physiology, Mor and G P, second; Rudolph Raphaël, Frand Punc; Wm Thompson, A.

POINT ST. CHARLES.

FIRST PRIMARY—BOYS.

Charles S Corne, R W, Sp and G P, second; John M. Turnbull, Punc.

FIRST PRIMARY—GIRLS.

Mary Walton, R; Emily Goudie, W; Minnie Mattey, Sp; Maud Patterson, Sc; Euphemia Law, Punc and G P, first; Rachel Anderson, Punc; Susan Price, G. P, second.

SECOND PRIMARY—BOYS.

George B Currie, R; Robert Abraham, W; John J. Cuthbert, Sp: Wm Robertson, A; Michael O'Brien, Punc; Jno Wm Clarke, G P, second.

SECOND PRIMARY—GIRLS.

Mary A Kinnistor, R, S, A; Elizabeth Morton, W, G P, first; Elizabeth Bean, A; Christina K Turnbull, Punc; Mary A Myers, G P, second.

FIRST INTERMEDIATE—BOYS.

Arthur W Hostler, R, W, G P, first; James Anthony. Sp, G P, second: Wm Sprinklin, A; Wm K Turnbull, Punc.

FIRST INTERMEDIATE—GIRLS.

Sarah Powles, R; Alfreda E Bacer, Wr, Sp; Eliza Doig, A; Sarah Robertson, Sc, Fr, G P, first; Annie Dickson, Geog, G P, second; Elizabeth Wry, Punc.

SECOND INTERMEDIATE—BOYS.

Alfred W Hayden, R, Sc, Grm, G P, second; Alex Gibson, Wr; Wm G Rainsford, Sp, A, Geog, G P, first; Samuel Hall, Punc.

SECOND INTERMEDIATE—GIRLS.

Janet B Carmichael, R, Sc, G P, second; Henrietta Wood, Wr, Sp, A, Gram, G P, first; Mary E Laing, Geog, Jennie Ogilvie, Punc.

FIRST SENIOR—BOYS.

Wm J McGuire, Wr; Thos Moisey, Sp: Thos Patterson, H; Wm J Marks, Alg and Punc; Albert H Ellis, Punc.

FIRST SENIOR—GIRLS.

Maggie Currie, R, Punc.

SECOND SENIOR—BOYS.

Henry Cockfield, R, Sp, A, Fr, Gram, H, Alg, Geom, Mu, Punc, G P, first; Samuel Upton, Wr and Botany.

MILL STREET SCHOOL.

FIRST PRIMARY.

Charles Smart, R, Wr, Dictation, A. Punc, G P, first; Stephen Jones, Sc, G P. second; Maud Lewis, Sc H, G P, second.

SECOND PRIMARY.

Charles Ellcott, Dictation, A, Sc, H, G P, first; Robert Jones, R, Wr, Fr G P, second; Robert McIndoe, Punc; Editt Jones, R, Wr, Dictation, A, Punc, G P, first; Isabella Robinson, G P, second; Libby Basham, R, Wr, Dictation, A, Sc. G P, first; Jessie Imrie, Punc.

FRENCH SCHOOL—FIRST YEAR.

Augusta Castier, Octave Mollet, Alphonse Fournit, Pierre Caraulette, Antoinette Caraulette, Marie Hutton, Jeanne Durand.

SECOND YEAR.

Dominique Viatons, Emile Ste Marie, Joseph Rouke, Eliza Corneau, Valerie Girardin, Leopold Caraulette, Alice Doudiet, Eva Ste Marie. All the above, prizes for general proficiency.

ROYAL ARTHUR SCHOOL.

FIRST PRIMARY—FIRST CLASS.

Annie Brown, 1st G P; Ellen Spellsey, Punc, second G P: Esther McQueen, Sc; Howard Noble, R, 1st G P; Jas McKinnon, A, Sc, second G P: William Wilsom, Wr, Sp; W Nich, Punc.

FIRST PRIMARY—SECOND CLASS.

Julia Helland, Sp, Punc, 1st G P: Abigail Hazely, Wr; Florence Tester, A; Chas Punzier, A, Sc, 1st G P; Geo Perkins, R, 2nd G P; Thos Denovan, Sc: Eric Hovey, Punc.

SECOND PRIMARY—FIRST CLASS.

Maggie McNonald, 1st G P; Sarah Stentson, 2nd G P;

Maggie McKay, Punc; Chas Walsh, 1st G P; Samuel Cunningham, R, Sc and G P; Inglé Hovey, Wr, A; Patrick Treliven, Punc.

SECOND PRIMARY—SECOND CLASS.

Louisa Punnier, Wr, Fr, A, 1st G P; Jessie Houston, R, Sp, A and G P; Kate McKinnon, R, Punc; W Barber, 2nd G P; H Brown, Punc; Thomas Akin, A; Alfred Howell, A.

FIRST INTERMEDIATE—GIRLS—FIRST CLASS.

Nellie Nosworthy, Fr, A, Punc, first G P; Carrie Cleany, Wr, Geog, second G P; Lizzie Jackon, Sp, Sc; Maud Mathews, R.

FIRST INTERMEDIATE—BOYS—FIRST CLASS

Sidney Smiley, R, Sp, Fr, A, Punc, and first G P; H Vincent, second G P; Henry Daoust, Wr, Fr; Arthur Horsfell, Sc.

FIRST INTERMEDIATE—SECOND CLASS—GIRLS.

Victoria Smily, Wr, Sp, Georg, Sc, Punc, first G P; Ida Morrison, A, second G P; Jessie McFarlane, R, Sp; Lilly Smily, Fr.

SECOND INTERMEDIATE—GIRLS.

Isabella Corner, Sp, Gram, Fr, Sc, Punc; first G P; Maggie Niblo, R, A, Punc, second G P; Jessie Mitchell, Wr.

SECOND INTERMEDIATE—BOYS.

Joseph Brown, Geog, first G P; Neil McKenzie, Sp, Sc, 2nd G P; A Cople Wr, Fr; F Selway, R, Punc.

FIRST SENIOR—GIRLS.

Lilly Clark, Gram, A, Geom, Mor, first G P; Maggie Bower, second G P; Kate Waldie, Lat; Viola Hollann, Punc, and fourth Drawing; A Swift, R; A Stephen, Sp, Geog, H.

FIRST SENIOR—BOYS.

William King, R; James Currie, Punc; Alex Mitchell, Geog, Wr; F Kay, Sp.

SECOND SENIOR—GIRLS.

Kate Erikman, R, Wr, Sp, Gram, A, Georg, Punc, first G P; Sarah Turner, Botany; Alice Stafford, fourth Drawing.

SECOND SENIOR—BOYS.

J Barry, Mor and Punc; H Smith, R, Sp; D Brooks, Geog and Botany; J Ramsay, Wr.

GRACE CHURCH SCHOOL.

FIRST PRIMARY—BOYS.

G P, George Heartly; R, M Rutherford; Sp, James Ford; Sc, John Lowe; Punc, Jno Rutherford; G P, John Thompson

FIRST PRIMARY—GIRS.

G P, M Findlay and Jessie Pryde: Wr, Margaret Webster; A,—Cocker; Punc, Fliza Miligan.

ANN STREET SCHOOL.

FIRST LIST—FIRST PRIMARY—GIRLS.

Maggie Dixon, R, Sp, Sc, first G P; Elizabeth Brown, Wr and first G P; Marion Allan, Wr, A, and second G P; Emilie Crowley, Punc and first G P; Mary A Jones, A and second G P; Jessie Dansey, R; Mathilda Reid, Punc: Barbara Carson, Punc; Mary Hamilton, second G P.

FIRST PRIMARY—BOYS.

Wm Dodds, R and first G P; Wm Harvey, R, Sp, A and second G P; Alex Bowles, Wr and G P; George Hamley, first G P; Frank Currie, Wr; James Roxborough, Sp; Arthur Cunningham, A: Ernest French, Sc; Angus McQueen, Sc; Chas Smith, Sc; Andrew Elliott, Punc; Franck Norman, G P; John Lindsay, G P.

SECOND PRIMARY—GIRLS.

Mary Robinson, R, A and first G P; Elisabeth Hazely, Wr; Lydia Faulks, Sp; Jennie Pagan, Punc; Nina Rennie, second G P.

SECOND PRIMARY—BOYS.

Wm White, R S. and first G P; Jas Smith, A, Sc; Chas Crofts, Wr; James McKenzie, Punc; Orlando Norman, second G P.

FIRST INTERMEDIATE—GILS.

Marie Thepault, Wr, Fr, Geog, and first G P; Augusta Fabien, A and second G P; Euphamia Allan, R; Elizabeth Pitts, R; Jessie Duncan, Wr; Emily Brown, Sp; Edith Cressard, Punc; Catherine Lappin, Punc; Mary Herron, Punc

FIRST INTERMEDIATE—BOYS.

Albert Nicholson, Wr and second G P; James McDougall, Sp and Punc; Alexander Pringle, R; Frank Holiday, Sp; John Holiday, A; Hugh Convey, A; Geo Mountain, Punc.

SECOND INTERMEDIATE—GILS.

Isabella Finlayson, A, Sc, Geog and first G P; Eliza Currie, R; Mary Duncan, Wr; Maria Sharp, Sp; Mary Mitchell, Fr; Lena Millan, Punc; Quenten Muir, G P.

SECOND INTERMEDIATE—BOYS.

Joseph Tees, Gram, first G P; John Gordon, Punc

FIRST SENIOR—GIRLS.

Martha McMurdy, Wr and Sc; Georgiana Iles, Punc.

FIRST SENIOR—BOYS.

Donald Fraser, R, Alg, Geom, first G P: Duncan Finlayson; Sp; Henry Stephen, Punc.

SECOND SENIOR—GIRLS.

Elizabeth Cuttle, A, Sr, Gram, and second G P; Catherine Gardner, R; Elizabeth Goodfellow, Sp; Christina Ross, Punc.

SECOND SENIOR—BOYS.

Hugh More, Wr, Fr, Geog, Alg, Geom, Mens, Botany, Punc and first G P; Alfred Barlow, Mens, Geog, Gram, Lat, H, and first G P; James Rutherford, second G P.

THE JOHN FROTHINGHAM MEDALS

were then awarded to the two highest pupils of the British and Canadian School, Miss Christina Galt and William Tudor being the successful candidates. As they came on the platform they received a burst of applause from their schoolfellows. The money prizes for drawing were then given by Mr. Lunn.

MAYOR HINGSTON

delivered a brief address, congratulating the teachers and scholars upon the gathering, he saw before him. As far as his eye could reach, he saw numbers of well dressed, healthy and happy children, and no one could look upon them without acknowledging the sight of a complete refutation of the charge of unhealthiness laid against our city. He assured the children also that they ought to be thankful for the circumstances in which Providence had placed them in that they had an opportunity for a capital education thrown open to them but a few steps from their houses. In his (the Mayor's) younger days, schools were not so plentiful, and a walk of three or four miles was often the portion of the scholar of that time. He closed by wishing them one and all—teachers and scholars—a hearty enjoyment of the holiday season.

Dr. Dawson then announced a holiday in all the Commissioners' schools, in order to allow the children and teachers to attend the McGill Normal School examinations to-day. He also thanked the C. P. R. for the free use of their cars in carrying the scholars to the Rink.

The national anthem then concluded the day's programme. The arrangements throughout were carried on successfully, and the vehicles provided for the conveyance of the children from their respective schools to the place of gathering were admirably managed. The accommodations for the press were not thought of, however, and it was only through the thoughtfulness of Ald. Stephens that seats were provided on the platform in rear of the speakers, where hearing was next to impossible. The gathering on the whole, however, was surprisingly successful, when the large number of children is considered, and Professor Robbins and his staff have reason to be congratulated that everything passed off so well in this experimental and inaugural gathering of the city schools.

Model School.

The examination of pupils took place yesterday morning, and in the evening the prizes were distributed in the upper hall of the McGill Normal School.

The hall, as is usual on such occasions, was filled to overflowing with visitors interested in the occasion, and there were present Principal Dawson, LL. D., F. R. S., &c., Professor McGregor, T. Hicks, head master, and Professor Fowler in charge of the musical department.

Principal Hicks delivered the opening address briefly congratulating the children and teachers upon the work of the past year, and suggesting increased efforts and the necessity of enlarged accommodations for carrying on the work of education in that department to meet the constantly increasing demands which an ever increasing and prosperous population demanded.

The prize list of the primary department, under Miss Sloan, was then called up, each pupil receiving his prize, after which singing was led by Professor Fowler. The girls' primary Department under Miss Swallow was then called upon to receive prizes, each pupil filing up and receiving her prize amid the applause of her classmates. Some more singing and then the prizes for the advanced classes of boys under Mr. T. Hicks were given. After more vocal music from the whole school.

Principal Dawson made a few remarks dwelling upon the early history of the school and the remarkable speed in the elementary branches of education that had taken place since it opened. He was glad to see the proficiency attained by the school in general, and directed the scholars never to forget the debt of gratitude they owed to the teachers and Professors in charge of them. The following are.

THE PRIZE LIST.

Note.—The following explains the abreviations necessary to condense the list :—R, Reading ; F, French ; G H, General History ; E H, English History ; E, Etymology ; E C, English Composition ; Cr, Credit Marks ; G, for Geography ; Gm, for Geometry ; A, for Arithmetic ; H C, for History of Canada ; Gr. for Grammar ; Sp, far Spelling ; Al, for Algebra ; L, for Latin ; W, for Writing ; P, for Physics ; M A, for Mental Arithmetic ; P, for Punctuality ; T, for Tables ; C, for Conduct ; R, for Regularity ; D, for Drawing ; G I, General Improvement,

Primary department—Senior section.

Fifth Class—W, G, C, R, P and A ; Susan Bastian, T, Fr and C ; Lizzie Lawrie ; R, S and C ; Minnie Cooper, W, D and C; Thos Cooper, P, and C.

Fourth Class—Annie Baylis, W and C, Florence Linton, R and W ; Willie Walkley, R, A, T, H, G and F ; Zilla Clyde. P and G I ; Eddie White, P ; Jas Boyd, D, A, W and C.

Third Class—Johnnie McDougall, A, G and H ; Miles Grant, W and D ; John Myers, S and P ; Horace Duval, P ; Chas King, P.

Second Class—Joseph Barlow, D, A, T, G, H, P and C ; Annie Murray, R, W, F, P, D, A, C, R and P.

First Class—Lily O'Grady, W, D and H ; Nancy Michaels, S, T, F, F, and R ; Willie Nichols, S, T, G, F, C and R ; Jessie McBratney, S, R and C.

Junior section.

Fifth Class—Thos Weir, S, W and R ; Fred Cooper, T, C and P ; Willie Duke, A and R ; Harry Cleghorn, S, T, G and R.

Fourth Class—Clara Bastian, S, T, A, G and C ; Lillie Hart, S, T, C and P ; John Starke, S and T ; Lizabelle Graber, S, P and R.

Third Class—Alice Barlow, T, A, G, W and P ; Isabel Cameron, S and T ; Samuel Linton. S and T.

Second Class—David Grant, S and A ; Tommy McMann, T and R ; John Randolphe, C and P ; Jessie Greer, S and C.

First Class—Henry King, S, T, A, W and P ; Fred Gross, S and A.

Boy's advanced Department.

Advanced Class—James Allan, R, F, G H, E H, Ety, E C. Abraham Greenberg, P, A, G, Gm, Book-keeping. Walter Turner, Th, A, P, G, H of C. Dunbar Browne, Gr, E H, Al, L. Edward H Hamilton, W, D, Physics. Duncan D McTaggart, M A and Al.

Senior division.

Tenth Class—McLeod, S, Ph, Pr A, P, G, E, H and G. Olsen, R, Th A, M A, Phys, G. Swan, D and M D. Baker, C M in Prac A, Cooke, G and F.

Ninth Class—McPherson, Th A, M and Pr A and G. Ruston, R, S, P, P G, E H. Lloyd, C M and M D. Chadwick, F and C.

Eighth Class—Bowles, R, E C, P, Th A, M A and Pr A. J Ogilvie, Sp, W, E C, P G, Gr, E H, G and M D. D Ogilvie, R, D and C.

Intermediate division.

7th Class—Barlow, G and C ; Michaels, D and C ; Dresser, Sp, W and Map drawing ; Brady, M, A and G ; Deles Dêrniers, C, and H of C.

4th Class—D Friedman, R. W and Map drawing ; Murdoch, E. C, A and G ; F Brawn, G, H of C, and C M ; A Friedman, R and S.

5th Class—Lee, D, A and G ; Murray, G and Map drawing.

4th Class—Thompson, D and G ; Warrick, W, Map drawing and C M ; Hasley, R, H of C and F ; Hersch, A, G and C.

Juniors.

3rd Class—McCrudden (S J), A and C M ; T McCaw, R, Sp and G ; V Martin, M, A, G and F.

2nd Class—Wm Bristowe, G and G ; Wm Greer, W and D ; Wm Marchbank, Sp and F ; R Cooke, C M and A ; Meyers, Sp and G ; Ogilvy, M A, A and C M.

1st Class—Myers, Sp, Gr ; John Ogilvy, M A and Cr.

Girls' Department—Junior division.

Class 1—A Kydd, Wr, C and sewing ; Maria Graber, P.

Class 2—Susie Welsh, Wr, C and G ; Isabel Reed, M A, C M, C and P ; Maggie Longmore, D and Sewing ; Annie Maltby, S and Arithmetic.

Class 3—Ada McCreadie, D and P ; Rosa Silverstone, R, Wr, C, M and P A ; Annie Henry, Sc, H, C ; Grace Thompson, G, G and sewing ; Mary Jane Murray, S, Fr, C M and Punctuality.

Intermediate division.

Class 4—Ida Robins, Sewing Diligence and C ; Wilma Baltzly, R, C, G ; Lizzie Hamilton, M and Practical Arithmetic and C ; Maggie Donovan, Sp, D and Map drawing.

Class 5—Dora McMann, Sp, D, Theoretical Arithmetic, Sewing and C ; Mary Cox, G and G.

Class 6—Ella Sandham, F, Map drawing and Sewing ; Alice McWatters, M A and improvement ; Bertha Gross, D, C H, Sewing and C ; Martha Cooper, M and P A ; Matilda Anderson, Sp and C ; Alexandra Dawson, W and P A ; Annie McBeath, R, C, T A, G, G and C.

Class 7—Helena Hart, Fr, Punc and C ; L Baylis, M A, C H and Map Drawing ; S Thurston, Map Drawing and Sewing ; Lizzie Lyster, C, T A, C, and Punc ; Emily Buchanan, R, Sp and D ; Mary Hurst, G, Gr and Credit Marks.

Senior division.

Class 8—Eliza Boyd, Wr and Theoretical Arithmetic ; Amelia Smith, Sp and Fr.

Class 9—Jessie Greenshields, R, Practical Arithmetic and Sewing ; Louisa Cowan, Wr and Fr ; Mary Weir, E H, C, Theoretical Arithmetic and Punc.

Class 10—Jane Robinson, Punc and Co ; Maud Martin, R, C, Physiology ; Bella Laidlaw, R, Cp, Wr, Dr ; Jessie Gardiner, Fr, Punc and C ; Marion Russell, Theoretical, M and Practical Arithmetic, G, Gr, E H and Political Geography.

Advanced Class—Barbara Neill, W and Al ; Julia Hurst, D and Punc ; Minnie Greenshields, Sp, T and P A, C H and book-keeping ; Katie Taylor, Sp, Fr and Al ; Sarah Misell, Hygiene and T A ; Eliza Beyd, D, book-keeping, Cr, Punc ; Ella Hilton, P and T A, C, G H, and Punc.

Primary Department—Senior section.

Class 4—Annie Baylis, W, C ; Florence Linton, R, W ; Willie Walkely, R, A, T, H, G, F ; Zillah Coyle, P, G I ; Eddie White, P ; James Boyd, B, A, W, C.

Class 5—Edith Turner, W, G, C, R, P, A ; Susan Bastian, T, F, C ; Lizzie Lawrie, R, Sp, C ; Minnie Cooper, W, D, C ; Ellen Elliott, P, C ; Philip Pearson, D, G, C ; Thos Cooper, P, C.

The Catholic Commercial Academy and the Polytechnic School.

In November, 1873, as our readers may remember, the Catholic School Commissioners of this city, with the support of the Provincial Government, established, in the same place and under the same direction as the Commercial Academy, a Polytechnic School, for the education of young men preparing themselves for the industrial professions. The institution of such a means of instruction cannot but be regarded as a great advantage to the country and ought to be welcomed by the public generally as affording an excellent opening for the ambition of those young people, the bent of whose mind does not lead them to adopt the already too over crowded professions of law and medicine. Quite recently the school has been endowed with the privilege of granting diplomas in Surveying and Civil Engineering, like the McGill and Laval Universities. A suggestion was made some time ago by the Principal (Mr. Archambault) to the intent that one pupil should be admitted *gratis* from each county—a system which has been found to work admirably in the United States. It is to be hoped, in the interest of the Province, that the

Legislature will authorize this movement, which the Minister of Public Instruction has already sanctioned. The success which has attended the Polytechnic School since it has been in operation gives promise that it is destined to do a great work in the cause of the higher industrial education, and renders reasonable any desire on the part of those in charge of it to extend its usefulness.

Yesterday forenoon a public examination was conducted, under the superintendence of the Principal, by Professors Balate, MacDonald, Pfister and Haynes, in the various branches pertaining to the course of study, including mathematics, pure and applied, physical science and linear and ornamental drawing. The results were most satisfactory and highly creditable to both teachers and taught. Among those present were the Hon. Mr. Guibaud, S. S., the Rev. Mr. Desmazure, Mr. Martin, M. P. P., and Edward Murphy, Esq., Commissioner of Education. The questions employed to test the progress of the students were by no means elementary, and they were answered by the students with a promptness, intelligence and lucidity which fully proved that their acquaintance with the subjects was thorough. The examinations in trigonometry, geodesy, and in several departments of natural philosophy, especially chemistry, were exceedingly interesting, and were evidently enjoyed by the visitors present. The time was too short, however, to admit of all the subjects being taken up, but, if they had been entered on, we have no doubt that there would have been displayed equal evidence of proficiency. Some of the drawings which we had the pleasure of seeing were executed with remarkable accuracy and finish. Want of space unhappily prevents us from appreciating them as they deserve, but we cannot refrain from mentioning a plan of Mount Royal, with the different elevations lately elaborated; plans of bridges, of various systems, English and American; of the Pacific Railway, with elevations, reduced from an original plan, 25 feet in length; of the Fourth Avenue Tunnel, and of the Eddystone Lighthouse. This last is really a most praiseworthy piece of work. Of free hand and perspective drawing, the specimens noticed were good, and we were shewn some pretty essays in chartography.

One great advantage which the students both of the Commercial Academy and the Polytechnic school possess, is the excellence of the apparatus of all kinds belonging to the establisment. The chemical laboratory has, perhaps, few superiors in Canada, and the instruments and other material for the illustration of natural philosophy, natural history (though, in some respects, as yet incomplete) are also excellent. The deficiencies, which exist chiefly in the department of geology, will soon, we understand, be supplied.

In the afternoon the examination was very pleasantly supplemented by another event—the distribution of prizes not only to the deserving students of the Polytechnic School but to the pupils of the Commercial Academy. The total number in the latter at present is 291, and in the primary school attached to it, 172: these, with 12 students in the Polytechnic School, make a total of 475 persons receiving instruction at the institution. To a fair proportion of these prizes were awarded. A full list of these prizes is contained in the printed report of the Academy, considerately given by its authorities to those persons who are or ought to be most interested in its work. We may mention, however, the following special prizes: the "Edward Murphy" prize—a gold medal and $50,—was awarded to Napoleon Giroux, a pupil of the Commercial Course; the "Comte" prize—the sum of $50—was adjudged to Leopold Girard, of the same course; the "Jodoin" prize—$50—to Olivier Dufresne, of the same course; and the "Mayor's Prize," (the gift of his Worship Dr. Hingston), was awarded to Peter McCaffrey, of the same course. This is the first year that this last prize has been awarded. Seventeen pupils of the Commercial Course received diplomas of capacity, with varying degrees of distinction.

Of the students of the Polytechnic School, Mr. Emile Vanier won the first, Mr. Stanislas Pariseau the second, and Mr. Gustave Papineau, the third prize in the second year of the engineering course; Messrs. Noel Gauthier and George Languedoc obtained prizes in the first year, and Messrs. George Desbarats and Joseph Tessier were awarded prizes in the preparatory course.

The distribution of prizes was witnessed by a large number of the parents and friends of the recipients and of those favorable to the progress of sound education. The pleasant task of awarding them fell to the lot of the Hon. Mr. Ouimet, who performed the duty with grace of manner, made more gracious by kindly words. The prizes were all works of beauty and value—consisting, for the most part, of choice selections from French and English literature.

Pensionnat du St. Nom de Marie, Hochelaga.

The annual examination of the school attached to this Convent was held before a large and highly fashionable audience. The pupils, 156 in all, ranging from 5 to 15 years of age, were attired in white dresses, trimmed with blue sashes, and presented an exceedingly pretty appearance. Space, will only permit us to touch upon the more practical and useful character of the proceedings, otherwise we might have enlarged upon the beautiful and varied scenery, grounds, and excellent interior arrangements of the school.

Before proceeding to note the programme of the day, it will interest our readers to know something of the various art studies, examples of which were submitted in one of the lower rooms for the inspection of visitors. There were at least 200 of exceedingly elaborate specimens of painting, needlework, embroidery, writing, etc. Conspicuous among them was a large lace antimacassar worked in lace, in lozenge pattern, upon a scarlet satin ground, the handiwork of Miss Newman, 17 years of age, of Brooklyn, N. Y., one of the present year. A water color drawing by Miss Parsons, of New York, also a graduate, is worthy of mention on account of the general harmony and thoughtfulness of her subject, "David" playing upon the harp, an elaborate sample of needlework, containing all the different stitches, from the plain samples to the gold bullion, is worthy of special mention on account of the skill shown in the work. This, we believe, is the effort of Miss Minnie Cooke, 17 years of age, of New Haven, Conn. Passing on, we come to a similar piece of needlework, by the Misses Wurtele of Montreal, entitled "The Death of Douglas." The subject is extremely superior in its general effect. It is 1½ x 5½ feet in size. An oil painting, "The Falls of Reichenberg," by Miss Estelle L. Ensworth, of Elmira, N. Y., is carefully and well painted; the perspective being correct in its detail, and the truthfulness of the water effect highly commendable to the young lady. A Shakesperian study from King John (5ft. x 4ft.) in wool work, contributed by Miss O'Meara, was noticeable for the brilliant harmonious grouping of the figures, which possess a more real appearance than is usually found in works of this kind. A crayon drawing, "The Watterhorn," by Miss Moriarty, aged 16, of Boston, is one of the best specimens of crayon

drawing we have ever seen in so young a pupil. A scene from Lake George, by Miss Mary Nolan, of Schenectady, N. Y., shows much care and natural ability, and reflects high credit upon the young lady. A group of flowers in raised woolwork, embroidered upon a scarlet silk velvet cushion, the Work of Miss Lavinia Rolland, is particularly delicate and beautiful, and was highly extolled by lady visitors who were competent judges of this particular art. An album containing a choice arrangemen tof the various analyses of botanical subject afforded Miss Ella Haines, of Brooklyn, the opportunity of displaying her fine taste in this Department. The work must have cost her no little labor, as each particular leaf was adjusted separately. Among some of the best samples in needlework was an album containing a miniature assortment of all the necessary articles needful for a lady's trousseau, prepared by a little girl aged 9 years—Miss Hectorine Duhamel, of Montreal. The collection includes every requisite necessary for a complete outfit, from the miniature handkerchief to the costly and elegant modern costume. It is, we believe, one of the rules of the school that each pupil is obliged to do her own necessary sewing, and if this example may be taken as an average illustration of the young ladies' abilities in this particular, it is a significant indication of their future usefulness. Want of space prevents further reference to this department, and we can only mention that if we have not described the works of Miss Ida Dugan, 13 years, Brooklyn, of Miss Josephine Mount, 15 years, Montreal, and of Miss Mary McGrath, Clinton, Massachusetts, it is because time will not permit us to do so. Suffice it to say they were excellent of their kind—of a kind which reflects much credit upon the Nuns under whose instruction they have profited so well.

In writing, Miss Mary Nolan, Miss Minnie A. Cooke and Miss Haynes occupy the three first places of honor. Lettie Shephard, 13 years of age, and Lillie Devlin, 16 years, of Montreal, are also entitled to honorable mention. The characters were elegantly formed, clear and beautifully rounded. The number of specimens of embroidery was legion, and, to make a comparison would be a difficult task indeed, so we give it up in despair.

The programme, apart fram the distribution of prizes, consisted principally of piano-forte music, in which ten pieces were used to illustrate the thorough drill which the pupils have received in keeping time and in observing expression. A general review of this important element will suffice for all the pieces which were played. The modulation and exactness of time gave evidence that the tuition had not been in vain, and here it be observed that Madame Petipas, whose name is familiar to our citizens, has succeeded admirably. As will be seen, many of the pieces are exceedingly difficult to read satisfactorily, and, with a few exceptions, the young ladies acquitted themselves admirably. One feature of this excellent school especally worthy of reference is the succesful introduction of an intellectual basis in the practice of music. Through Prof. E. A. Robbin's system of harmony, which is taught as a regular branch of education, the pupils were initiated in January, 1875, in a course of lectures in this study, by this gentleman, which has been thoroughly carried out through the year, under the able assistance of Mrs. L A. Alleyn. When we consider the usually superficial manner in which music is taught now-a-days, the value of this system cannot be too highly estimed. The examination of the classes in Harmony last Monday week passed off with great credit to the pupils and teacher.

The programme opened with the "Defile March" (E. Ketterer.)—Misses V. Mount, F. Horne, A. Lorange, M. Gagnon, J. Mount, K. Moriarty, M. Truteau, H. Marchand, M. Weldon, C. Bourassa, L. Newman, E. Tourville, C. Walker, M. Poupart, I. Bernard, C. Francœur, M. Tourville, M. Rourke, F. Curren.

The prologue read by Miss J. Parsons was as follows:

Ladies and Gentlemen,—This is our harvest feast today whence we gather in the fruits of the seed sown during the past year. Most gratefully do we appreciate the honor of your presence, trusting that your kind wishes will not be wanting to hover round our triumphs like white-winged angels and draw down blessings on them from on high.

A very fair harvest we reap, this one of intellectual labor. We greet it with smiles and song, and as its crown encircles each brow, the heart throbs and the eyes brighten with the thoughts of the dear ones at home for whom these trophies have been sought and won. But with it comes another harvest fairer still and far more precious; crowned, too, with sunlight, the glory of which shimmers through a haze of tears. Among its mystic treasures are acts of devotion, mother like in their disinterestedness; there are moments of close union with God, and all those summer sky changes of school-girl time that with some of us have finished forever, except in memory, where they shall live eternally. And this is the harvest of the heart, reaped from the past year of convent life. Reverently do we gather in its fruits, tenderly wreath its flowers, and all beautiful as they are with the sunlight of Hope shining upon them, and the tear-drops of Farewell glittering amid their leaves, and place them in our hearts, a cluster of loveliness, whose sweet perfumes will impregnate our whole lives, and ever recalling the happy past, waft our thoughts through the dim future to Heaven forevermore.

Awarding the gold medals to the successful graduates, whose names are: Miss Adele Roy, Miss Rossetta Newman, Miss Jane Parsons, New-York, and Miss Maggie Sullivan, Chicago.

Medals of Honor were also given for application in the study of the French language to Miss L O'Meara, and to Miss M Gagnon, for the same in the study of English.

Trio final de l'Opera—La Dame Blanche de Boieldieu; sung by Misses E O'Brien, J Parsons and L. Newman (pupils of Madame Petitpas.)

Rewards of Merit were received by Messrs. M LeChevallier, M Trainor, F Wurtele, A O'Brien, C Walker, L Newman, M Cook, T Mount, B Chene, L Devlin, M Poupart, F Curran, H St Louis, A Lorange and E Tourville.

Overture, Guiliaume Tell, S Smith; Miss M O'Meara, J. O'Meara, L O'Meara, E Haines, L Devlin, E Payne, M Sullivan: L Rodrigue, B Chene, I Voligny, A Généreux, A Robillard, M Clément, H St. Louis, E Ensworth and M Cook.

Award of prizes for good conduct, application and general proficiency: For good conduct by Misses L O'Meara, M Gagnon, M. Nolan and F Wurtele; application, Misses M Gagnon, N Chilton, F Wurtele and T Voligny; general proficiency, Misses E Ensworth, M Gagnon, M O'Meara and E Haine.

Marche Triumphale, D A Goria—Misses M Trainor and L Gidney (pupils of Madame Petitpas.)

The awards in class prizes were so numerous that our space will only admit of naming the successful scholars in each.

First class in French and its various branches—Miss L O'Meara, Mary Trainor and Mary Nolan.

In Astronomy, Rhetoric, Grammar, Conversation, Recitation, Composition, Chemistry, Writing, to Annie Galvin.

Analysis, Declamation, and Ancient History, to Annie O'Brien. The names of the other successful competitors in the English course were Corine Walker, Estelle Ensworth, Lydia Newman, Estelle O'Brien.

Second Class in French.—A Loranger, Ida Voligny, Eugene Tourville, Antoinette Genereux, Blanche Sicotte, Malvina Tourville, Antoinette Merrill, Henrietta Marchand.

Second Class in English.—Minnie Cook, Nannie Chilton, Lottie Gibney, Kate Moriarty, Minnie O'Meara, Lily Devlin, Erva Payne, Justina O'Meara.

Third Class in French.—Misses F Bernard, Delia Tellier, Malvina Genereux, Alexandra Tourville, Courinne Francœur, Marie Clement, Eliza Lorange, Marie Lorange, Albertine Francœur.

Third Class in English.—Marie Lechevalier, Florence Wurtele, Josephine Mowat, Rosalie Chene, Hannah Tordoff, Fannie Curran, Marie Pike, Florence Horne, Mary Rourke, L McCready, E Hames, Mary Ann McGrath, Ida Dugan, A Borthwick.

Fourth Class in French.—Misses M Poupart, Laura Rodrigue, Josephine Gagnon, Delima Thibault, Anna Fauteaux, Orphalia Valois, Albertine Archambault.

Fourth Class in English.—Missis Gertie Holman, Mary Ann Scoth, Ida Meyers, Anada Soly, Aggie Sullivan, Minnie Haynes, Virginia Mount, Hattie Brady, Letie Shepard, Alice Casy, Maggie Durack.

Fifth Class in French.—Misses Louise Debigarre, Clara Bourassa, Justina Larivee, Amanda Deschamps, Marie Louise Genereaux, Marie Louise Leblanc.

Fifth Class in English.—Misses Emma Wilson, M Collins, Julia Casey, Johanna Higgarty.

Sixth Class in French.—Misses Eugenie Daigenault, Charlotte de Rourville, H Voligny, Blanche Brunet, Maria Crevier, Maria Bedard, Engenie Fontaine, H Duhamel, Y Brunet, Maria Louise Quevillon, Zaida Dufresne, Euclina Desmarteau, Corinne Tourville.

Sixth Class in English.—Misses Kate Lowe, Ella Horne, Loretta Gallagher, Gertie Devlin, Mary Ann Lebadie.

Preparatory French Class.—Misses A Archambault, Georgette Benoit, Georgianna Geoffrion, Josephine Quevillon, Ida Desnoyers, Hermine de Rouville, E Lafleur, Corinne Lafleur, Marie Rolland.

Preparatory English Class.—Misses Lettie Horne, Hattie Wildon, Allie Hughes, Gertie Allyn.

" Marche Céleste, " Quartette, by Misses J Larivee, C de Rouville, H de Ronville, M Crevier, A Sullivan, B Brunet, Y Brunet, G Benoit, An Fauteux, Al Fauteux, H Duhamel, Z Dufresne, M L Leblanc, A Tourville, C Tourville, M Bedard, G Cevlin, E Horne, L Shepard, G Geoffrion, J Hagarty, M Collins, J Casey, L Gallagher, Al Archambault, O Valois, E Desmarteau, An Archambault, J Gagnon, D Thibeault, M L Quevillon, J. Quevillon.

A number of prizes were awarded for the following :—Sewing, embroidery, music, drawing and painting, which come under the heading of first course prizes. The list is not classified clearly enough to enable us with facility to give the separate subjects for which the prizes are given, many of the pupils having received prizes for more than one subject in these departments.

1st Course —Misses Lizzie O'Meara, Marie Gagnon, Marie Lechevallier, Mary Trainor, Mary Nolan, Florence Wurtele, Katie Moriarty, Abbe O'Brien ; Annie Galvin, Corinne Walker, Estelle Ensworth, Lydia Newman, Estelle O'Brien, Minnie Cook, Ninnie Chilton, Josephine Mount, Lottie Gibney, Rosalie Chene, Minnie O'Meara, L Devlin, M Weldon, M Poupart, H Tondoff, Fanny Curran, Ewd Payne, A. St. Louis, M Pike, A Loran, E Tourville, M. Truteau, Ida Voligny, Antoinette Genereux, A. Robillard, Blanch Sicotte, T Bernard, F. Horne, G Holman, Mary Ann Scott, Ida Meyers, Clara Clara Bourassa, Louisa Debigure.

2nd Course.—Misses Delia Tillier, Justina O'Meara, Mary Bourke, Aggie Sullivan, Antoinette Merrill, Malvina Genereux, Malvina Tourville, Alexandra Tourville, Jnstina Laurin, Corinne Francœur, Minnie Haines, Ella Haines, Josephine Gagnon, Virginia Mount, Eliza Lorange, Blanche Gauthier, Laura Rodrique, Henrietta Marchand, L Rolland, Lizzie McCready, Mary Ann McGrath, Maria Clement, Marie Lorange, Albertina Francœur, Delima Thibault, Anna Fauteau, O. Valois, Albertina Albertina Archambault, Lottie Shepard, Maggie Durack, W L Genereux, Marie Louise Leblanc, Kate Lowe, M Collins, Johanna Haggarty, Gertie Devlin.

PETIT PENSIONNAT.—Eugenie Daigenault, Corinne Tourville, Marie Bedard, Charlotte de Rouville, B Brunet, G Benoit, A Archambault, Eugenie Fontaine, Hermine de Rouville, H Lafleur, H Duhamel, Ella Herne, M L Quevillon, Josephine Quiette, Corinne Lafleur.

The following pupils in Madame Petipas, music classes were awarded prizes ;—

For vocal music—Misses L Newman, B Gauthier, K Moriarty.

For instrumental music—Misses Mary Trainor, Lottie Gibney, Josie Parsons.

Three handsome gold crosses were given by Professor Robbins for proficiency in the study of his system of Harmony, to Misses A Galvin, M Trainor and T O'Meara.

The programme concluded by a grand *duo du couronnement* (H Herz), by Misses M O'Meara, L O'Meara, L Generenx, L Devlin, B Sicotte, M Sullivan, A. Roy, E O'Brien.

Just preceding the conclusion Mr. Alphonse Desjardins, M. P., made a congratulatory speech to the pupils, whom he complimented upon the improvement they had attained in the various subjects.

The Mother Scholastique, assisted by Sister Thaïs, of St. Joseph, read the list of prizes, and the pupils were crowned with handsome wreaths by Sister Rosalie, assisted by Sister Laura.

Through the kindness of Sister Etienne our reporter was shown over the school, which, in point of comfort, elegance, general convenience and home-like surroundings, can scarcely be surpassed. The dormitories are large and well ventilated ; the studies for the older graduates are extremely neat and cozy, while the various class rooms are replete with every facility for educational purposes.

Mile End Deaf-Mute Institution.

The closing examination for the season, and annual distribution of prizes, took place at the above institution yesterday morning, before a large number of spectators, among whom were a number of the parents of the pupils. Notwithstanding the fact that the oldest of the pupils have been studying only two years, the examination was a most satisfactory one, and highly appreciated by the parents and friends of the scholars. The prizes were distributed by the Rev. Father Taillon, and among the most successful competitors were Theophile Fournier, Idlege Lavallee, Eustache Choquette, Dennis O Boyle, Emile Grize and Joseph Gaudette ; the latter excelled in articulation, reciting the Lord's Prayer and was perfectly understood by all present. At the close of the exercises an address was read by John McHugh on " The Rise and Progress of Education of Deaf-Mutes," and the untold blessings it has been to them, much of which is due to Abbe de l'Epee. One was also read in French by O. Choquette, thanking the spectators for the interest manifested by them during the examination and the general sympathy extended towards them. The studies are of a general character, and the one thing in which some of the pupils seem to exhibit great genius is drawing. Quite a number of highly finished heads, busts and faces were shown, and displayed the gifted talents of their respective authors. Two pieces in crayon —St. George Slaying the dragon and our Saviour wearing the wreath of thorns—executed by two of the scholars, are to be seen hanging in the institution and do the donors no mean honor.

OFFICIAL NOTICES.



Department of Public Instruction.

DIPLOMAS GRANTED BY BOARDS OF EXAMINERS

MONTREAL (protestant).

ACADEMIES, 2d *class* (E) : Messrs. Robert Weir and Wm. Alex. Weir.

MODEL SCHOOL, 1st *class* (F) : Miss Adèle Biendeau. 2d *class* (F) Misses Anaïs Bruneau, Marie Dirringer, Sophie Sheppard ; (E) : Misses Jeunie Frost, Elizabeth Grant and Messrs. Wm. H. Hicks, John Henry Rogers and S. E. Watson.

ELEMENTARY SCHOOL, 1st *class* (E) : Messrs. Jas. A. Arnold, Silas A. Labonté, Alfred Rose and James Tipping ; Misses Eliz. Campbell, Hattie S. Corbin, Caroline Goodfellow, Hannah M. Kenney, Mary McColl, Sarah H. Manning, Isabella Morrin, Mary E. Phillips, Ada Smith, Frances C. Strong, Hannah Eliz. Thompson, Anna Maria Wales, Mary Watson, Maggie E. Williams, Lizzie Young, (F) : Fleurida Gosse, Rosalie McLaren and Léa Mathie. 2d *class* (F) : Misses Alphonsine Hamel, Azilda Larivière, Emma Vessot ; (E) : Mr. Philip Fraser.

T. A GIBSON, secretary.

1st June 1876.

ST. HYACINTHE.

Model School, 1st *class* : Misses Delphine Trudeau, Amanda Laforce.

Elementary School, 1st *class* : Mr. Herménégilde Brunelle, Misses Adélina Blanchard, Mathilda Fredette, Hortense Trudeau, Alphonsine Godin, Emélie Senécal, Elise Martin, Elise Goulet, Arthémise Sylvestre, Victorine Huot, Marie Louise Malo, Célina Allaire, Délima Blanchard, Angelina Roy ; Misses Delphine Trudeau and Amanda Laforce have also obtained their diploma for elementary school.

N. Gervais, secretary.

St. Charles, 11th May 1876.

KAMOURASKA (catholic).

Elementary School, 1st *class* (F) : Misses Virginie Beaulieu, Glisserie Bérubé, Catherine Desjardins, Hélène Dionne, Emma Dubé, Marie Adélaïde Dumais, Célina Francœur, Denise Mailloux, Azélie Moreau, Celina Thibault. 2d *class* (F) : Antonia Caron, Elvina Massé, Marie Délima St. Pierre.

J. G. Pelletier, secretary.

Kamouraska, 3rd May 1876.

STANSTEAD.

Elementary School, 1st *class* (E) : Misses Mary A. Field, Laura A. Blount, Mary E. Wells, Jennie Reed and Messrs. Edward A. Davis, George Brock. 2d *class* (E) : Miss Mary Schoolcraft and James P. Parker.

Elementary School, 1st *class* (F) : Misses Aglae Trudeau, (E) : Maggie Allan, Libbie Dow, Dollie S. Humphrey, Lucinda A. Reed, Sarah E. Locke, Flora E. Bullock, Ida E. Merrill, Edna H. Bodwell, Emma Chase, Clara J. Comstock, Henrietta Davis and M. Wallace R. Packard. 2nd *class* (A) : Misses Clara M. Searles, Ella Impey, Helen D. Rider, Hannah E. Church, Jennette Kier, Annetta Frost, Grace A. Young, Alice M. Humphrey, Annie Raymond, Jennie Rexford, Ida A. Boynton.

C. A. Richardson, secretary.

Stanstead, 14th February and 2nd May 1876.

CHARLEVOIX AND SAGUENAY.

Elementary School, 1st *class* (F) : Miss. Philomène Tremblay. 2nd *class* (F) : Miss. Adelaïde Lavoie.

Chs. Boivin, secretary.

Charlevoix, 2nd May 1876.

CHICOUTIMI.

Elementary, 1st *class* (F): Misses Marie Louise Lachance and and Louise Virginie Lachance.

Ths. N. Cloutier, secretary.

Chicoutimi, 3rd May 1876.

WATERLOO AND SWEETSBURG (protestant).

Elementary School, 1st *class* (A) : Misses Helen M. Johnson, Elizabeth Lindsay, Rachel Townsend, Lydia Beck, Mary J. Beattie, Julie Baker, Emma Babcock, Emeroy E. Corey, Polly Currie, Fannie A. Douglass, Ida K. Farnham, Ella M. Hurlbert, Eliza Jane Hall, Carrie McCarty, Julia Martin, Martha E. McCrum, Jennie Morgan, Ella J. Ross, Jennie Seale, Patience E. Seale, Anna K. Scott, Carrie H. Stinehour, Hattie S. Shufelt, Mary E. Taber, Margaret Tibbets, Agnes Yates and Messrs. John P. Hall, John Parker, William Beach. 2nd *class* (A) : Misses Martha Goodwill, Nellie M. Bedard, Chestinai Bullard, Bridget Connor, Ida F. Draper, Emma Drew, Clara A. George, Adelia Green, Clara A. Joyal, Zannetta A. Lewis, Calista Parsons, Mary A. Payne, Ida E. Snider, Flora Wilson, Jeanie P. Watson et MM. Archibald Galbraith et William R. McLaughlin.

Wm. Gibson, secretary.

Adamsville, 9th February and 8th May 1876.

QUEBEC (catholic).

Model School, 2nd *class* (F) : Misses Célina Sylvain, M. Exilda Cantin et MM. Firmin Létourneau et Jean-Baptiste Tremblay ; (A) : Dlle. Margaret Helen O'Reilly.

Elementary School, 1st *class* (F) : Misses Aurélie Bergeron, M. Florida Coulombe, M. Delphine Delisle, M. Mathilde Fournier, M. Odile Garneau, Rosalie Grégoire, M. Léa Leclerc, Emma Levasseur, M. Alodie Mercier, M. Victoria Ouellet, Domitilde Pâquet and M. Eugénie Pelletier, Marie-Louise Boilard, M. Héloïse Boilard, M. Emérise Drapeau, Rosalie Gagnon and M. Sophie Trudel ; (F and A) : Misses Marie Gosselin, Célina Ratté and M. Louise Mélanie Rhéaume ; (F) and 2nd (A) : Misses Philomène Dion ; (A) and 2nd (F) : Miss. Mary Jane Finn and M. Joseph Hargadon ; (A) : Misses Margaret Jane Hawkins and Mary Gertrude Heatley. 2nd *class* (F) : Misses Délima Baillargeon, M. Soulanges Beaudoin, M. Emélie Bittner, M. Flore Bussière, M. Hélène Camdon, Sara Chabot, Denise Athalie Collin, M. Anatala Palmire Collin, M. Eulalie Caroline Couture, Véronique Esther Dionne, M. Cédulie Godbout, M. Elise Lacasse, M. Célina Labrecque, M. Joséphine Laroche, M. Adélaïde Lépine, M. Sophie Martineau, M. Délima Martineau, M. Sophie Nolet, M. Emma Proulx, M. Ozithe Soucy, M. Athala Vallée, Marie Vallière, M. Mathilde DeVarennes, Emélie Gagnon, Odile Gingras, M. Stella Pelletier, M. Emma Perrault and M. Olive Ratté ; (A) : Miss. Joséphine Demers.

N. Lacasse, secretary.

Quebec, 1st February and 2nd May 1876.

QUEBEC (protestant).

Model School. 2nd *class* (A) : Miss. Susan Stevens and Annie Kelly.

Elementary School, 1st *class* (A) : Misses Sarah Jamieson, Rebecca Moffatt, Eliza Smith, Kate Ahern, Christiana Cooper and MM. Samuel Fortier and Samuel Collins. 2nd *class* (A) : Misses Flora J. Solandt, Elizabeth Kean, Charlotte Ramsay, Elizabeth Ferguson, Mary Gordon, E. F. Barrow, H. M. Hutchieson and Frances Staton.

James Wilkie, secretary.

Quebec, 3rd August 1876.

RICHEMOND (protestant).

Elementary School, 1st *class* (A) : Misses Jane H. Bernard, Erena M. Clampet, Irena Cummings, Margaret Hall, Carrie J. Morrill, Emma Silver, Violet J. Thorburn, Ella E. Walker, Annie G. White, Dame Elizabeth C. Gowen and MM. Sheldon H. Haddock and Loel Allen Wilkie. 2nd *class* (A) : Misses Elizabeth Jane Beattie, Florence V. Cumming, Mary Lay, Mary E. Marshall, Ida V. Morrill, Sarah Reed and MM. Henry Campbell and Thomas Driver.

C. P. Cleveland, secretary.

Richemond, 9th May 1875.

BONAVENTURE.

Elementary School, 1st *class* (F and A) : Misses Marie-Agnès Berthelot, Marie-Cécile-Joséphine Landry, Marie-Théodiste Cyr, Marie-Emilie Audet, Marie-Flavie-Elzire Smith, Marie-Ermente Boudreau, Mary-Eliza Stewart ; (F) : Misses Marie-Rose Comeau, Marie-Angélique Desbigarré, Marie-Virginie Guité dite Green, Marie-Julie Poirier and M. Pierre Cyr ; (A) : Misses Isabella Harper, Lilias Fairservice and M. Lemuel M. Nely. 2nd *class* (A) : Misses Marie-Rose Comeau, Marie-Angélique Desbigarré and M. Pierre Cyr.

P. J. Ruel, asst.-secretary.

Carleton, 4th August 1876.

TREE-RIVERS.

Model School, 1st *class* (F) : Misses Louise Gouin, Mathilde Robitaille, Olivine Richard, Alphonsine Giroux ; (F and A) : M. Alphonse Pierre Gélinas. 2nd *class* (A) : Misses Louise Gouin, Olivine Richard, Alphonsine Giroux.

Elementary School, 1st *class* (F) : Misses Emélie Cloutier, Emma Trépanier, Emma Lottinville, Domithilde Lambert, Virginie Cloutier, Phélanise Noël, Edwardinna Lottinville, Grace Elizabeth Hall. 2nd *class* (F) : Misses Salomée Lefebre, Caroline Dupont, Rose Anna Deshaie, Marie Dupuis, Luce Gélinas, Arline Lacourse, Léa Richard, Philomène Richard, Eliza Gélinas, Estelle Bédard, Anastasie Pinard and Eugénie Perreault.

Ephrem Dufresne, secretary.

Three Rivers, 7th August 1876.

POETRY.

The Dark Huntsman.

By Charles Heavysege.

I dreamed it was eve, and athwart the grey gloom,
Behold ! a dark huntsman, dark coming like doom ;
Who, raising his hand, slowly wound a weird horn,
Far o'er the wide dimness its echoes were borne ;
Rang dirge-like and dismal
Through skyd abysmal,
Wherein hung the moon to a crescent down shorn.
The blasts of his bugle grew wilder, more eerie,
As gaily he galloped like one never weary,
Adown the dim valley so doleful and dreary,
And woke the tired twilight with echoes forlorn.

Forlorn were the sounds, and their burden was drear
As the sighing of winds in the wane of the year;—
As the sighing of winds in a ghoul-haunted vale,
Or howling of spirits in regions of bale;
The Goblin of Ruin
Black mischief seemed brewing;
And, wringing her hands at her sudden undoing,
The woe-stricken landscape uplifted her wail.

I still dreamed my dream, and beheld him career—
Fly on like the wind after ghosts of the deer—
Fly on like the wind, or the shaft from the bow,
Or avalanche urging from regions of snow;
Or star that is shot by the Gods from its sphere:
He bore a Winged Fate on the point of his spear;
His eyes were as coals that in frost fiercely glow,
Or diamonds in darkness—"Dark Huntsman, what, ho!"

"What, ho!" I demanded, and heard the weird horn
Replying with dolefullest breathings of scorn;
The moon had gone down,
No longer did crown
With crescent the landscape, now lying light-lorn;
But rose amidst horror and forms half unseen
A cry as of hounds coming hungry and lean;
That, swelling sonorous as upwards they bore,
Filled all the vast air with their many-mouthed roar.

Roared, roared the wild hunt; the pack ravened, they flew;
The weird horn went winding a dismal adieu;
With hubbub appalling,
Hound unto hound calling,
Each fleet-footed monster its shaggy length threw;
Till faint grew the echoes, came feebler the bay,
As thunder when tempests are passing away.
As down the ravine in loud rage the flood goes,
As through the looped Ruin the hurricane blows,
So down the dark valley the eager pack sped
With howlings to Hades, the home of the dead:—
Therein they descended like creatures breeze-borne,
Or grovelling vapours by distance shape-shorn;
And, lost in the depths of that shadowy shore,
Hounds, horn, and dark huntsman alarmed me no more.
For who that is mortal could meet without fear
The Figure endowed with the Fate-winged spear?
Or temper his breath
At thy presence, O Death,
Who hunteth for souls as one hunteth the deer!

MISCELLANY.

Where the Sun does not Set.—A seen witnessed some by travellers ie the north of Norway, from a cliff elevated a thousand feet above the sea, is thus described:—"At our feet the ocean stretched away in the silent vastness; the sound of its waver scarcely reached our airy look-out; away in the north the huge old sun swung low along the horizon like the slow beat of the pendulum in the tall clock of our grandfather's parlour corner. We all stood silent looking at our watches. When both hands came together at twelve, midnight, the full round orb hung triumphantly above the waves, a bridge of gold running due north, spanning the water between us and him. There he shone in silent majesty, which knew no setting. We involuntarily took off our hats; no word was said. Combine, if you can, the most brilliant sunrise and sunset you ever saw, and the beauties will pale before the gorgeous colouring which now lit up ocean, heaven, and mountain. In half an hour the sun had swung up perceptibly on his beat, the colours changed to those of morning, a fresh breeze rippled over the flood, one songster after another piped up in the grove behind us—we had slid into another day."

English Reigns.—Queen Victoria has now attained a very high rank on the roll of our Kings for length of reign; having lately passed Henry VIII, and Henry VI, she now stands fifth in order, being still junior or inferior only to Elizabeth, and the three long Thirds, Edward, Henry, and George. Of our early English or ante Norman Kings no other reigned so long as Ethelred the Unready, but his 38 years are already exceeded by our present Sovereign's 39 years. Elizabeth's reign, from the death of Mary, Nov. 17, 1558, to her own death, March 24, 1603, lasted 44 years and 126 days; so that Victoria has to reign five years 126 days beyond to-day before she will equal her great forerunner. Then will remain ahead only Edward III, 50 years and nearly five months; Henry III, 56 years and three months. But of course even these long reigns look short by the side, of 72 years of Louis XIV, of France. Probably no two successive Kings of any country reigned over so long a space of time between them of Louis XIV, and Louis XV, who from 1643 to 1774 made up together 131 years, or an average of rather more than 65 years per reign. How long will it be before France enjoys or suffers 131 consecutive years of rule under two persons, or even under two forms of government?

Mr. Ruskin's Advice on Dress.—Dress as plainly as your parents will allow you: but in bright colours (if they become you), and in the best materials—that is to say, in those which will wear the longest. When you are really in want of a new dress, buy it (or make it) in the fashion, but never quit an old one merely because it has become unfashionable. And if the fashion be costly, you must not follow it. You may wear broad stripes or narrow, bright colours or dark, short petticoats or long (in moderation) as the public wish you; but you must not buy yards of useless stuff to make a knot or a flounce of, nor drag them behind you over the ground, and your walking dress must never touch the ground at all. I have lost much of the faith I once had in the common sense and even in the personal delicacy of the present race of average English women, by seeing how they will allow their dresses to sweep the streets, if it is the fashion to be scavengers. * * * Learn dressmaking yourself, with pains and time, and use a part of every day in needle-work, making as pretty dresses as you can for poor people who have not time or taste to make them nicely for themselves. You are to show them in your own wearing what is most right and graceful, and help them to choose what will be prettiest and most becoming in their own station. If they see that you never try to dress above yours they will not try to dress above theirs. Read the little scene between Miss Somers and Simple Susan, in the draper's shop, in Miss Egeworth's "Parent's Assistant," and, by the way, if you have not that book, let it be the next birthday present you ask papa or uncle for.

Iron in Buildings.—Invaluable as iron is, says the *Pall Mall Gazette*, when properly handled, it is a very treacherous material when left to follow its own course without constant and competent inspection. It is often carefully embedded in the mortar of a building without the slightest suspicion of the fact that from the moment of its being embedded it commences a slow but irresistable process that must result, unless provision be made to prevent it, in the destruction of the building it was intended to strengthen. Instances are familiar to the engineer of the splitting and bursting of brick walls from the rusting of hoop-iron between the courses of bricks, which was inserted for the purpose of strengthening the bond. If the bricks had been laid in Roman cement no mischief would have ensued, as this material when set effectually prevents that chemical action which lime mortar invariably occasions. One of the most striking instances that can be cited of the slow but ultimately destructive action of iron plates inserted in a building was detected in the tomb of King Henry VII, in Westminster Abbey, some ten years ago. Most of the metal work of that structure was either copper or bronze; but at the four angles of the tomb itself, where the slab bearing the Royal effigy rested on the costly stonework of the sides, iron plates had been inserted by way of bond. Slowly and steadily for three centuries and half these iron plates attracted oxigen and carbon from the atmosphere or from the mortar of the tomb, and coated themselves with dense plates of rust of three or four times their own thickness on either side. The result of this irresistible wedge was the twisting and rising of the rest of the work, and had not these plates been removed when the grille was cleaned, they would, sooner or later, have overthrown the tomb. We have here the case of the secular action of the same cause, of which the more rapid and easily ascertainable action flooded the hospital the other day.

—Home and School for August contains a curious inquiry into the identity of the Behemoth and Leviathan of Scripture. The writer, Mr. Will Wallace Harney, collating the vigorous

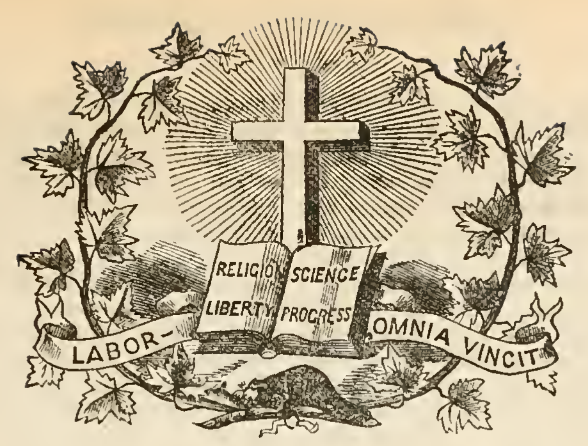
descriptive passages of Job, and placing them side by side with the descriptions of modern scientists, proves that Behemoth is *not* the hippopotamus, and that Leviathan is *not* the crocodile, as Biblical commentators have generally assumed; but that former is the extinct Megatherium, and the latter is the Ichthyosaurus, or sea-serpent of seamen? The remarkable conclusion of the paper is that the animals which comparative anatomists describe from an examination of the fossil remains must have been seen in life by the writer of Job, and hence were contemporaneous with man. The other illustrated articles are "Rhinoceroses"—a hunt in South Africa being the subject of a spirited engraving; and the "Botanical Studies" of John Williamson, in which the writer, taking the Jeffersonia diphylla, or twin-leaf, a common though peculiar wild flower, adapts its leaf and flower to art purposes. The professional papers are "Is Being Built," by Professor Joynes, of Vanderbilt University, with a running commentary by the editor; "Practical Elocution;" "Oxford University, England;" "Spelling," etc. There are the usual sprightly and scholarly notes in the editorial department concerning recent movements in the fields of education, science, and literature.

On Dreaming.—The second of Professor Ferrier's two lectures on "Sleep and Dreaming" was delivered at the London Institution on Monday afternoon before a crowded audience, and was devoted to the latter subject, with the exception of a brief *resumé* of his former lecture on Sleep by way of introduction. Sleep, he had shown, was the repose of the brain as the organ of consciousness, and sound sleep the cessation of conscious activity. He set aside as unsound the doctrine of Sir W. Hamilton, who, from the phenomena of dreaming, had argued the continuousness of consciousness during sleep. The brain, though a unity, was a complex unity, and to different parts different functions belonged. Hence, according to the analogy of the bodily functions, one part and its function may rest while others are in action. The partial activity of the brain was the explanation of dreaming. Conscious activity belongs to the hemispheres proper of the brain. The parts below, in so far as they are independent, are concerned in actions described as reflex, sensi-motor, &c, and these can go on as well during sleep as in our waking hours. Diagrams of the brain were referred to in illustration. The brain was the organ of consciousness, and it therefore—not the ganglions of the nervous system, as held by Dr. Carpenter and others—was the organ of sensation. The phenomena of hemi-anaesthesia were cited in proof. For each class of impressions there were special regions of consciousness in the brain. The lecturer was even disposed to localize attention and the higher intellectual faculties. The impressions received were photographed on the brain, and were capable of being revived. But for this power of recalling them no knowledge would be possible. Memory, or the registration of sense impressions, is the ultimate basis of all our mental furniture. Each piece of that furniture has its function, like the letters in a compositor's case. We have a sight-memory, an ear-memory, &c. When thinking, or engaged in ideation, we are but recalling, as shown by Herbert Spencer and Bain, our original sensations and acts of cognition. Some move their lips when thinking, as though summoning up the names for their former sensations. Commonly the reproduction was very faint, but in some instances it was nearly or quite as vivid as the original sensation. It was so with Goethe and other poets, with painters, religious enthusiasts, and with those called spiritualists. It was so also in delirium and mania, and there was always something morbid about such cases. The auditory phantoms of musical composers and others were spoken of. The impressions made on taste and smell were not often so vividly reproduced, but is was otherwise with those of touch. The relation between visceric euphoria or dysphoria was next illustrated, and the laws of association of ideas, as laid down by Laycock and confirmed by Dr. Carpenter. The nature of this association will vary as individuals, but if the man be known as well as the general laws, it will be possible to read his thoughts. Here the lecturer read a striking extract from E. A. Poe, ("Murders in the Rue Morgue," vol. 1, p. 409), which was received with loud applause. The foregoing principles were then applied to dreaming. In accordance with the laws laid down those portions of the brain most continuously in action would require the longest rest.

Hence the centres of attention would sleep while the functions allied to reflex actions would more easily awaken. The brain in sleep was compared to a calm pool in which a stone causes ripples liable to interruption by other ripples similarly caused. So the ripples of ideation get confused. But, again, the circle on the pool may not be interrupted, and then the ideation will be regular. The current of ideation may be coherent or incoherent. The most vivid association, which is commonly the latest, dominates over the rest. Dr. Reid, the metaphysician, dreamt of being scalped by an Indian. There was a blister upon his head. Dr. Gregory, through having a hotwater bottle at his feet, dreamt of walking up the crater of Ætna. A troublesome corn makes a man dream of serpents biting his foot, and a ringing in the ears has caused dreams of marriage bells. The blue devils and other horrors seen by the victims of delirium tremens were analogously explained. Visceral conditions were known to be most frequent sources of dreams. The hungry dream of feasts, the thirsty of water, and the dropsical of drowning. From the condition of the digestive organs arose nightmare. Mental or bodily dejection shows itself in oppression of the chest, and this *vice versâ*, causes mental or bodily depression by the law of association. We feel a hideous animal sitting on us. The oppression leads to an effort at liberation, and we wake from nightmare with a scream. Bereavement makes us dream of our lost ones, and we see them so vividly that our dreams become real apparitions. Incoherent dreaming, in which the currents of ideation get jumbled together, was happily compared to the changes produced by the shaken kaleidoscope. It was remarked that there was never anything absolutely new in our dreams; we never dream of anything of which our senses are wholly ignorant. The blind do not dream that they see, nor the deaf of music. Here a letter is missing from the fount of type. Our fancy in dreams is awake, and the faculties which should check it are asleep. Hence we are wont to say that nothing surprises us in sleep. The lecturer proceeded to shed light on such facts as that problems have been solved by mathematicians in their dreams which had utterly baffled them when awake. So the poet Campbell excogitated in his sleep the celebrated sentence, "For coming events cast their shadows before." One beautiful illustration the lecturer used. The brain, he said, might become a palimpsest, the effaced writing on which often reappeared. Past impressions were imperfectly rubbed out and the present written over it, but past memories would revisit us in our dreams, if not in our waking hours. Of the tenacity of memory, a marvellous illustration was cited from Trevelyan's "Life of Macaulay," who picked up while he was waiting in a Cambridge coffee-house for a postchaise a country newspaper containing two poetical pieces, one, "Reflections of an Exile," and the other a "Parody on a Welsh Ballad." Macaulay looked them once through, and never gave them a farther thought for forty years, when he repeated them without the change of a single word.

—*The Pennsylvania School Journal* for August is received. It is a holiday number and contains some 52 pages, mostly matter descriptive of certain buildings at the Centennial, as Machinery Hall, Agricultural Hall, The Women's Pavilion, Horticultural Hall, Memorial Hall, the Art Annex, and others, together with extended descriptions of various educational exhibits. In the last issue of *The Journal* the U. S. Government Building was treated at length. These issues of July and August afford the most satisfactory guide to the visitor that we have yet seen. They are worth the price of the full year's subscription to any teacher or director who proposes to visit the great Exposition. The price of *The Journal* is $1.60 per year. Address J. P. Wickersham & Co., Lancaster, Pa.

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Professor Huxley on the Teaching of Science in Schools.

A lecture on "The Method of Teaching Sciences in Schools" was delivered on Saturday, the 10th June, by Professor Huxley, in the large Hall of the Watt Institution, Edinburgh, to the members of the Edinburgh branch of the Educational Institute of Scotland. The attendance, as might be expected from the reputation of the lecturer, was very large, and on the platform were Mr. Maurice Paterson, Principal of the Free Church Training College, Professor Hodgson, Dr. Donaldson, Dr. Ogilvie, Dr. James Bryce, Dr. J. Pryde, Dr. Lees, Dr. Graham, Dr. Ross, and a large number of the most distinguished teachers connected with the schools in and around Edinburgh. Mr. Paterson having been voted into the chair, Professor Huxley, who was received with applause, rose, and delivered the following address :—

The system of teaching science, like all wholesome things, had grown out of practical necessities. In almost all cases a science was the outcome of an art. People had begun to feel the necessity of systematising the rules of the art, and for building on them to the furthest extent, and these rules of the art had become what they now called science. This was eminently the case with the science the teaching of which first became properly organised—he meant the science of anatomy. The necessity for a knowledge of that science grew out of medecine. It became needful that men should understand the structure of the human body, not merely as a matter of curiosity, and that they should have such a knowledge as thoroughly as they possessed an acquaintance with the ordinary affairs of life. It was found that, in order to acquire that knowledge of anatomy, they could not trust merely to the oral ,nstruction of the teacher, excellent and useful as that might be. They could not trust to that kind of teaching supplemented by books, and even aided by diagrams, and showing the things upon the lecturer's table. But, in order to have knowledge which could be depended upon, it must be acquired by the person taught going over the matter which he had to know himself, and learning at first hand, so that from that time forth his knowledge would be as good as that possessed by his teacher. Now, in order to acquire such knowledge, dissecting rooms and anatomical laboratories were established, in which the student went to work for himself, verifying all that he had been told, and basing his knowledge of the structure of the human body upon the actual inspection and observation of the facts. He could almost remember the time when the teaching of anatomy was in a very imperfect state, but in the present day no anatomical school would be thought worthy of the name if it did not, in addition to the teaching of the professor and the handbook, provide the means by wich the student could work practically. As other sciences had grown and acquired a practical importance, and had become more or less the foundation of professions where exact knowledge became of great practical value, they had found themselves constrained to follow the example set in the case of anatomy. Chemists were among the first to do so. No one would now dream of teaching chemistry as taught in every university in this kingdom within the memory of living man, without any suggestion of practical instruction. What had taken place in chemistry had taken place in physics, natural philosophy, botany, physiology, in short, in every branch of

science—he was now speaking simply of the physical science that was seriously cultivated. In France and Germany, especially in the latter country, the laboratories for practical teaching had now attained marvellous magnitude and astonishing completeness of equipment. Even in this country, slow as we are, great changes had been carried out. Within the last few years both of our great Universities had established laboratories for practical teaching, and it was being done where it could be carried out in the Universities of Scotland. Our great University of Edinburg, one of the most important educational institutions of the three kingdoms, in regard to science was simply not doing all she might do in this matter for lack of material aids. The University buildings were absolutely inadequate for the purpose, and the sooner Scotchmen understood this to be the case the better it would be, because the teaching of the University at present was seriously impeded for the want of the practical appliances to which he referred. He did not mean to say, that although such complete appliances were absolutely necessary to the effectual teaching of the sciences, anything that fell short of this might not be exceedingly useful, but the value of the teaching would be diminished exactly in proportion as the practical element was omitted. Because, what did scientific teaching mean? It was not merely instruction. It was in a great measure that. It was the acquainting of the mind with the laws which governed the phenomena of nature, and he needed not to enlarge upon the well-worn topic of the value of such knowledge. But there was about scientific teaching a value as an educational discipline of a particular kind. The first element of value of scientific teaching arose from the fact of its cultivating the power of observation, which he thought was the most difficult to cultivate, or at any rate the least cultivated, and at the same time probably the most valuable of the faculties that man possessed. It was astonishing how difficult a thing it was to say exactly what was to be observed in anything, and to state what one had observed without putting in anything more or leaving out something. He should say that upon the whole it was the very rarest of all human qualifications, and the lack of it was at the bottom of half the miseries of human life. Any of them who had lived thirty years in the world could not have failed to see that half the evils of society, the malice, hatred, and uncharitableness of this world, arose not exactly from bad intention. He did not think human nature was altogether of so malicious a character as is was represented. But it was because people allowed their statements of actual occurences to contain hypotheses in addition to the objective matter of fact. He would not give illustrations; they were to be found in daily experience. He knew of no educational discipline—he would not speak of moral discipline—which was of so great value in relation to this apparently fundamental difficulty of human nature as scientific discipline, for the source of all our mistakes in science was to be found in this unlucky habit of not being able to see what was before us, and putting into our statements more than was really in the facts. But, besides knowing, besides being able to use the mind, there were other faculties, powers, tendencies, and instincts in man's nature. He could imagine a person with endless knowledge and with great facility and dexterity in using it, yet being a man devoid of culture in the highest sense of the word. Mere knowledge was no very great thing, and mere dexterity in using it was no very great thing, looked at in relation to a man's own nature. What he meant by culture was something higher than this: it meant the disposition of the mind, a certain understanding of one's relations to that which is not of one's self, a certain confidence in the order of things; and no other study could give this particular form and disposition of the mind which alone deserved the name of culture so well as scientific training. They might say that he submitted this because it was his especial business and training; and very likely that might weigh very much with him, but yet that could not be the whole explanation of the case. He had seen the announcement a day or two previously of the death of the greatest woman of our times—certainly the person of the largest ability, so far as his knowledge went, and eminently an artist, who had exhibited in very different shapes the highest powers of the genius of the artist—he referred to George Sand. She died at the age of seventy, and in the year 1861 she published, when she was in the ripeness and maturity of her powers, one of the most remarkable of her books. In that work occured a passage in which she gave her view of the function of science in this world in relation to the highest culture. She said—"The man who reflects knows well that he is weak, that he is always liable to exhaust himself by an excess of the powers with which he is endowed. It is in forgetting his own miseries that he finds a renewal or preservation of his faculties, but this salutary forgetfulness is to be found neither in idleness nor in intoxication of the emotions; it is to be found only in the study of the great book of the universe. You will see that as you grow older." As he had said, all these results of scientific training could only be expected of perfect and complete scientific training; but he would again repeat that he did not wish to throw a shadow of reflection upon less amounts of scientific training. A great deal of information might be got by listening to lectures and by an intelligent reading of books, which was endlessly better than ignorance. He would now approach the question of science in relation to schools. Having formed an ideal, and knowing what was essential to the sound teaching of science, they had to consider how far was it desirable to introduce this teaching into the schools, how far was it possible to do it, and, if possible, what were the conditions and limitations under which it could be done. With respect to the advisableness of it, he did not think, looking at the question in the abstract, he needed to enlarge upon that. He did not think anybody could be found to seriously oppose the proposition that a boy or girl should not leave school absolutely unable to understand the commonest phenomena of nature, absolutely unable to comprehend the commonest complaints of our social life. Again, he did not think any one would seriously argue that it was not advisable, if possible, that young people should get something of that sort of discipline they had been talking of. It was not well that they should go through their whole educational course without understanding that there was some authority in the world beyond books and teachers—that there were such things as facts in the world, natural facts; and that it was possible in very simple and easy ways to ascertain things for themselves. He could not but think that if young people were constantly disciplined and trained in that habit of accurate observation, learning to mistrust their immediate impressions and warned against mixing hypotheses with observation of fact, they would be better prepared to do their duty in life when they left school, than they were now. There was an infinite curiosity in man, one of those faculties that he shared with his poorer relations in the lower world—a source of sorrow and one of his highest pleasures. Whether they approved or not of it, it was perfectly certain that it existed, and the mind of a child especially was given by nature to speculate and form hypotheses of everything that came within its reach; and if they did not give it the means to form a right, it would certainly form a wrong hypothesis,

such as they called superstitions and the like. It appeared to him that it was eminently desirable, as far as might be, that the speculative notions and inquiries of children should be satisfied, and that their speculative notions should be sound. Suppose that, in walking along the beautiful sands at Portobello, one of the children they were instructing picked up a shell and asked what that was. He supposed no one would have any doubt or difficulty in replying that the shell belonged to a sea animal, that the creature which had made it was dead, and that the shell had been thrown up on the beach. That was what the most unscientific mind could not be ignorant of. So far the child's curiosity was satisfied in a proper manner. But if the child further asked—How did all the sand come there? He was not sure that it might always get so satisfactory an answer to that question; but let them suppose that the person possessed some common sense, and replied that the sand had come by the washing and wearing of the coast, and had been thrown up by the tide. In this way the child got a remote notion of natural operations. But suppose from this object they turned round and looked at that beautiful view, which he was never tired of gazing at—Arthur Seat, Salisbury Crags, Calton Hill, and so forth, and the child being inquisitive asked how this came to be. The question might be answered in three ways—first, Don't ask foolish questions—second, I don't know—and third, God made it. Each of these answers, in the sense in which the child understood the thing, was a distinct harm to that child. The first answer was a mortal harm, because it tended to repress the spirit of inquiry and desire for instruction. The second answer was harmful, because it might give the child to suppose that this was so difficult a question that a person of the intelligence and authority of its teacher might not be expected to be able to answer it; and the third answer was harmful, because it led the child to suppose that Arthur Seat and Salisbury Crags and all the rest of it came into existence by some agency different from that by which the beach was produced and by which the shell was cast upon the beach. A teacher should have such instruction in elementary geology as to be able to say with perfect confidence—he did not mean to explain to the child in technical geological language the exact relation these masses of rock had to the different periods of the world's history—but that he might say that these rocks were records of very singular operations and agencies which once took place there. By active volcanoes, and flows of lava, and action of water, and various natural agencies, these had been sculptured and shaped into their present order. There could be no difficulty in getting ideas of that kind into a child's head, and in that way its knowledge was increased, its justifiable curiosity was satisfied, and, more important than that, the idea of the unity of the operations of nature, and the uniformity as a whole of all such operations, had struck yet another root into the child's mind. He ventured to take it as desirable that science should be taught in schools; and now came the question whether it was possible. What they called possibilities and impossibilities had frequently a relation to the condition of things that existed, ignoring the question whether these conditions could be altered or not. He knew it to be lamentably true that at present the school time of young people was very full—in fact, he thought it was very considerably overburdened. The world at present was going examination mad. He was glad to get that response from practical teachers. They were gradually ceasing to care for learning, the one thing they did care for was to pass examinations. But there was no reason why that should not be altered. There was no divine law which had settled that subjects of education should be what they were at present. If he were to discuss the value of these subjects as compared with science he would enter a very large field—one he had touched already elsewhere, and on which his notions were entirely unchanged. He did not care to discuss it at present, because, having occasion to watch the course of events very carefully during the last thirty years, he had begun to see in what direction the great tidal currents, if he might so say, of modern civilisation were setting. There was a time when he was very anxious about the introduction of scientific training into the schools, but he had ceased to be so. The tide had set thay way, it was flowing as fast as it could flow, and if those who opposed themselves to it did not get out of the way they would be swept out. Granting the advisableness and possibility of getting scientific instruction, they might proceed to consider what, out of the enormous diversity of things that would be included under that head, would do better to be selected, and what method of teaching, or rather what course of teaching, would do better to be adopted. Here he thought they were quite safe in following the guidance of nature and the guidance of history. If they paid any attention to the history of science, they would see that its progress had been perfectly well marked. People had begun by acquiring an exact knowledge of the common phenomena of things which did not require much previous knowledge, and they had gone on making that knowledge more accurate, and gradually building up science out of common observation. They could not draw the boundary, and say where common observation ended and where science began. The one was simply a perfection of the other. He took it that they must follow the course of history in attempting to teach science to the young. They must begin with the common and familiar properties of things, by degrees enlarge upon these as the faculties of the children became more comprehensible, and build upon that foundation the system of knowledge they called science. He did not know that any foundation of science could be laid better than that which might be based upon a glass of water. If it were his business to teach a class of young people, he would be disposed to begin with such a common thing as that, and exemplify by the help of it the nature of water and the contrast of the properties of the fluid with the solid. He thought he would be disposed to give a rough explanation why some things floated in it, and other things sank in it. He would be inclined to show the different states of that water, and compare it with other bodies in their different states. Then he would go on to water in nature, and there would be no difficulty whatever in explaining in an elementary way and sufficient for the purpose the nature of rivers, rain, snow, hail, the difference of ocean as compared with fresh water, and the great mechanical operations of water. He would speak of the power of water as a transferring agent, and the manner in which it carried away material and laid the foundation for new land —in fact, from that foundation. without having recourse to a single technical term or abstract idea, they might build up not only elementary conceptions of physics and chemistry, such as child's mind was prepared to accept, but build up very competent notions of elementary physical geography. As a child advanced in knowledge of arithmetic and powers of reasoning, then they might make the knowledge a little more exact, and extend it to a wider area, but he would accompany that with demonstrations of the facts so far as practicable, making the student observe the phenomena of nature for himself. In that way not only would he gain a large amount of instruction, but there would be cultivated the power of observation and reasoning, and, what was more impor-

tant, he would gain confidence in the use of the reasoning powers of his mind. After having acquired some good notions of elementary physics and chemistry, his impression was that the next best study was human physiology, he meant in an elementary shape. That might appear at first sight to be rather an anomalous proposition, but yet, when they came to think of it, they would find that it was not so. Of course, to be a physiologist in the highest sense of the word, to be a perfectly technical physiologist, was quite another matter. While it was so difficult to understand advanced physiology, it was not difficult to comprehend elementary physiology—and for one reason among the rest, that the subject of their inquiries was their own bodies, and they could always have it at hand. They could demonstrate and feel in themselves the living action going on. This could be done, especially if it were supplemented by practical instruction. He did not want in that place to touch upon the subject of sundry unhappy controversies, but he did not wish them to go away with the notion that he was altogether a lunatic. It had been said, and repeated for years, that he had recommended that the children in schools who were learning elementary physiology should be encouraged to see and to perform the very difficult and complex experiments by which the higher truths of physiology were demonstrated. He could speak with great charity about the person who had said this, because it could only arise from the grossest ignorance. He meant that no one who knew anything about the matter could tell a falsehood of this kind. It was too gross and too patent. If those who had circulated a statement of that kind understood what physiological experimenting meant, and what sort of appliances, knowledge, and dexterity were needed, the whole thing would be seen to be simply childish and absurd. The practical instruction which he had recommended was that sort of anatomical knowledge which could be gained without the slightest difficulty by the ordinary materials of the butcher's shop. By a sheep's heart, for the purpose of elementary physiology, they could explain the structure of the human heart, and so on with the other organs. He did not say that would do for the professed student of human physiology, but to give elementary instruction the materials were amply sufficient. He had thought it right to take this occasion of explaining exactly what he meant in that elementary book of his which had been so terribly travestied. He did not suppose any of them would have believed the contrary, but he hoped all would take it now upon his authority that that was exactly what he meant. The extent to which they would carry this teaching would depend upon the time which could be given to it. If the time was given to the teaching of science that was allowed to the teaching of classics—he did not say whether that was desirable or not—there was not the smallest doubt that the boy of eighteen could be turned out of school a man of science in the same sense that the boy of eighteen was turned out a scholar. He supposed that for many years to come they would only get a fractional part of the time which was devoted to teaching in general, but he would be quite content with not more than an hour a day, or about a sixth part of the time given to school instruction. If their instruction in science was to have a greater value than information afforded, to have the value of discipline, less time would not do. In conclusion, the Professor urged the emphatic necessity of the teacher of science knowing thoroughly what he taught, and referred to the deficiencies in this respect which were at present exhibited by the teachers in most of our schools.

On the motion of Professor Hodgson, a hearty vote of thanks was awarded to Professors Huxley; a similar compliment being paid to the Chairman, and to Professor Hodgson himself, by whose arrangement the lecture had been delivered.—*The Educational Times.*

The Cultivation of the Memory.

DAVID B. SCOTT.

Is there not danger that, in the multitude of radical advisers on the paramount question of school-training, the faculty of memory may be quite thrust aside? The daily and weekly press, secular as well as religious, seldom lose an opportunity of thrusting a lance into what is called the most mischievous error of the schools, "parroting." The educational press have occasionally joined in this outcry, without considering that there might possibly be danger in yielding the whole point involved, without earnest protest. For the point covers a great deal more than appears at first sight, and its abandonment may involve that of the training of one of the most useful faculties we possess.

Surely, it may safely enough be granted that the mere learning of verbal definitions, rules, selections of poetry and prose, pages of history, and the one parrot-like repetition of the same to the teacher, under the idea that this is schooling, is the most absurd folly. Any such idea of the teacher's business, embracing this and little or nothing besides, ought to show the utter unfitness of the person holding it to fill any position as a teacher of youth. But it may safely be questioned whether there are many persons of any experience in the business of teaching who hold such an idea, and base their practice upon it. At least the number can not be so large that it should occasion fear sufficient to warrant the attacks we so often read against the prevailing method of instruction. Within the limits of cities, towns, and well-organized school-districts, it is becoming more and more difficult to find any considerable quantity of school-room work that lies open to such an objection. The whole tendency has been quite otherwise for a number of years.

The complaints that have found utterance through the public press are explainable enough, on another theory than "parroting." The lessons to be learned at home are in many cases most excessive in amount. They are given out often by pages, but are not intended to be committed to memory word for word. Unfortunately sufficient care is not always taken by the teacher to show what portions of the lesson are to be committed to memory, what are to be read carefully, and what may be either read hurriedly or left for class-room instruction on the morrow. If this be not done, the pupil has no other way left open to him when he prepares his lesson, than to memorize everything. This he seldom accomplishes. It is often hard, dry, technical, and unintelligible. The mere mass frightens him, and unless he has uncommon natural powers, he abandons it unlearned with disgust. Such work presses still more heavily upon girls than on boys, because the young feminine mind seems to commit to memory the school lesson more readily than boys; at least it adheres to its work with a finer conscientiousness than does the average young masculine mind. So it happens that when the hours fly by and the task is unfinished, the girl's pride quite breaks down, and the whole sympathy of the family is evoked by her tears. It is therefore not wonderful if the parental and maternal mind, losing all patience, inveighs strongly against memory lesssons, and expresses itself when it can, through the avenues of the press, with more force than courtesy, finding a convenient term in the word "parroting."

The teachers have not been slow to perceive the popular complaint; at least, not so slow as the pungent newspaper articles indicate. The supply is, sooner or later, regulated by the demand, in teaching as well as in other callings, and so it has come to pass that in an anxiety to rectify this subject of complaint, we find a disposition to put the cultivation of the memory in the back ground, and to elevate to its place the training of the reasoning powers. In that remarkable treatise on Education, the "Emile," of Rousseau, this great educational reformer, in his anxiety to free the minds of children from the pedantic training of the times, opens the flood-gates of his passionate soul in appeals to his readers to free the children from compulsory training of the faculties. It was the revolt of a powerfully sympathetic mind against what is believed to be the ignorant oppression of the schools. But, as a revolt, it carried the point quite too far, although unquestionably it served an admirable purpose in releasing educational methods from the choking ligatures of the age. It is the same tendency we notice in the disciples of Rousseau—the German school —to exaggerate the method, or system of methods, which for the time was uppermost in their minds. And precisely because such a reaction must be vigorous in its attempt to overthrow the deeply-rooted wrong methods which have provoked the reaction, arises the danger that the attack will be pushed much too far.

Through just such an anxiety to escape from the evil of excessive use, or abuse, of the memory in the public schools we have been brought face to face with the danger that we may be led to undervalue that faculty in our new methods in the school-room. There is something very fascinating in the cry, "Cultivate the reasoning powers of the children," and something quite as powerful on the teacher's mind in the ridicule and caricature of the memory-work. Unquestionably the child is, to some extent, a reasoning being, and, as such, there can be no doubt as to the property of our recognizing this in our educational methods. But is equally true that the reasoning faculty is very slow of development. The discipline of the intellectual faculties, from the simple habit of correct observation onward to the complex habit of weighing and testing the value of evidence, which, more or less, becomes the great business of human intellect, is a well-nigh never-ending process of development. Nor can there be any doubt that this training should be begun at a very early day, both in school and at home. The reasons for right conduct, in particular, in connection with some personal experience, are reasons which a child soon apprehends. The reasons for certain operations in science are much more difficult of apprehension, and must be proceeded with more carefully. But whether in conduct or in school studies, are not attempts by way of excessive explanation or talk, very likely to deceive the instructor in his endeavors to develop the reasoning powers? Scarcely an idea is more delusive than that our constant preachments to children, however plain they may appear to ourselves, must appear equally so them; and look at is as we may, spontaneity in thinking is in great danger of being destroyed by excessive anxiety on the part of the teacher to impress his modes of thinking and reasoning on the pupil under twelve or thirteen years of age. How is this spontaneity to expand itself? Not by the child slipping its mind into the shell that the instructor or teacher has prepared for it.

There are a great many points in the morals or conduct, as well as in school studies, that we can not wait to reason into a young child. These must be accepted through the force of authority and as settled truths. There are other cases where the pupil must be left to puzzle them out for himself, or wait for the dawning of light that sooner or later comes to even the most moderately endowed intellect. These we trust to the operation of well ascertained mental processes. But the great majority of young instructors, in particular, are in a hurry for results, and think that by constant talk their children will become reasoning, thinking beings. In this way they fancy that in some unexplained way they will be able to meet this new demand for the cultivation of the reasoning faculties and the abolishment of "parroting."

These remarks are only incidental to the object of this short article, a plea for the cultivation of the memory in our schools. Youth is the time for the exercise of this faculty. If it be neglected then, it becomes more difficult to perfect it as the years advance. Besides, the proper training of the memory is our main dependence for correctly-learned lessons. If the use of text-books is to be continued—and there is no prospect in the immediate future that they will be abandoned—what reliance is to be placed on our home work if the memory be neglected? It will be said that it is only the sense of the author that the teacher wants; he will be satisfied with the pupil's own language. But when is the young child to obtain its vocabulary? From clever children of twelve years, or from others of fourteen, there is some prospect of obtaining an approach to a connected, intelligent answer in their own language; but most teachers know that it is frightfully wearisome work to place dependence on that. The truth is that very few children have a vocobulary of any extent from which they can draw, and one of the first things that we ought to do is to assist them in enlarging it. For this there can be no better plan than committing to memory, with the utmost exactness, well-explained, simple language of a good writer. We say well-explained, because it is utterly wrong to require young children to learn what they do not understand. Possibly it was the doing of this that partly created the revolt in public opinion, expressing itself in that forcible word "parroting." A thoughtful teacher, on speaking of this very matter with the writer, remarked, that if he had the entire training of twelve children uninterruptedly, from seven years of age to twelve or thirteen years, he would undertake to furnish them with such a vocabulary and faculty of expression as would surprise me. He then added that he would do it by requiring them to commit to memory, at first, short pieces of pleasing poetry at least once a week. As the months flew on he would increase the amount. He would review these from time to time. When they learned to write, they should write these as exercises. As the years passed, prose pieces would be mingled with poetical extracts, and in the last two years, perhaps more, he would exercise them in turning the poetry into prose, and in expressing the prose in other prose of their own. Three things would thus be gained, the habit of exact memory, fullness of vocabulary, with facility of expression, and a well-stored collection of short, beautiful, and serviceable extracts for future life. There can be no question but that such a process of training would also powerfully influence the thinking of children. Just as constant contact with good society influences the manners of youth, so would the habit of memorizing beautiful thoughts in time affect the mind, and weave itself in with all the processes of thought.

There can be no doubt that an exact memory is an immense blessing. The power of producing at pleasure not only the thought but its very form and texture just as it left the writer, every word marshaled in it proper place, instinct with life and vigor and beauty—what would not one give for this in certain moods? But the words have floated away, the form has gone: we are

like one who wearily seeks to restore the matchless but shattered ruins, or to carve anew the limbs of the mutilated Grecian torso. With poetry this is still more true than prose. With the latter, it is possible to make some approach to the thought, although we may not be able to repeat the exact words. Much may still be saved. But with poetry, how different! Try it with some extract from Shakespeare, from Byron, from Wordsworth, from Tennyson, or from our own renowned poets. The mind wanders, if there be a break; to confusion follows vexation, and what would otherwise be an unpurchasable pleasure becomes an unsatisfactory as well as demoralizing regret over our own feeble memory. These attempts are, perhaps, in the seclusion of our own thoughts. Of what pleasure are we bereft when we wish to recall, for the enjoyment of our friend, the passages that gave us exquisite satisfaction? In society, as well as before the public, to quote incorrectly is to involve us in ridicule. It is not only a mistake, it is a serious blunder. Society did not ask the quotation. If it accept it, it will only take it as a perfect thing, or not at all. The same is true with quotations from Scripture. Woe betide the poor wight who, among Bible-taught people, substitutes a word for the old King James' translation.

This admirable faculty of exact memory teaches other things besides society and solitude. It enters into business, and powerfully affects the advanced student: it gives definiteness to our general thinking and a consciousness of power, a firm tread to the paths over which the mind travels. Its more immediate training in the school will be further considered when we come to speak of the proper use of text-books, in another paper.

—*Schermerhorn's Monthly.*

The Art of Translation.

Translation is likely to occupy an important place in the classical scholarship of the future. The larger becomes the proportion of educated men who are imperfectly acquainted with the Latin and Greek languages, the more pressing will be the obligation on those who make them their special study to render the substance and the form of the great masterpieces of antiquity intelligible and appreciable to all persons of ordinary culture. But if the execution of this work is to be in any measure adequate to the laborious preparation which, exact and finished scholarship implies, it must be attended with a clearer conception of the end and nature of translation than the fallacies on this subject which appear to have sprung up under the shadow of distinguished names, both at Oxford and Cambridge, but which we cannot but regard as mere idols of the philological cave, overlaying the simple and obvious principles which should guide all translation, and not bearing the light when taken out of the peculiar atmosphere of the lecture-room. One of these is the assumption that freedom and laxity of translation are convertible terms; that a translation must necessarily be "slipshod" if it is free, Or, to adopt the converse mode of statement, it is assumed that a liberal and a faithful translation are the same thing. But surely a faithful rendering may yet happen to be free, and a very literal translation may be slipshod in point of style. Every good translator will aim at being faithful, and will avoid being loose; but to aim at being literal is only less mistaken than to aim at being free, at least in the sense in which freedom is opposed to literalness. For there is one kind of freedom which the translator, like every artist, must prize amongst his highest gifts—the freedom which is inseparable from perfection.

This fallacy has been reinforced by a false analogy from the art of painting. It is taken for granted that the work of translating an ancient writing is like that of copying a picture, and that hence, as far as possible, not only the meaning of every line, but the actual curves and sinuosities of every line, are to be preserved. But the two operations are not *in pari materiâ*. The impressions of colour and form are not so different in different ages and countries but that a similar effect may be produced by giving line for line and shade for shade. But it is otherwise with the varieties of human speech, which have a subtle and intricate correspondence with successive or simultaneous modes of thought. A line-for-line or word-for-word rendering may produce a wholly different effect from that which the original produced on those who first read or heard it, either because their ears were habituated to a greater fulness of sound, or their minds to less regularly constructed periods, or to a greater prominence of logical forms, or to a more perceptible blending of poetry with prose. It is another lesson that the analogy of the art of painting may really teach us—the lesson of preserving the *tout ensemble*, the general harmony of colouring, and, above all, the spirit and motive of the original. This is the higher and worthier aim, at once high and noble, which is indeed common to the translator and to the copier of a picture, and the attainment of which distinguishes the mechanical copyist from the real artist. The one sees only the lines and pigments of the work before him, the other sees in imagination the natural or ideal forms and hues which the old painter saw.

Take, for example, the well-known passage of the *Phædrus*, which, notwithstanding adverse criticism, in the revised edition of Dr. Jowett's *Plato* almost word for word as in the first:—

"SOC. But let me ask you, friend, have we not reached the plane-tree to which you were conducting us?

"PHÆDRUS. Yes; here is the tree.

"SOC. Yes, indeed, and a fair and shady resting-place, full of summer sounds and scents. There is the lofty and spreading plane-tree, and the agnus-castus high and clustering, in the fullest blossom and the greatest fragrance; and the stream which flows beneath the plane-tree is deliciously cold to the feet. Judging from ornaments and images, this must be a spot sacred to Achelous and the Nymphs; moreover, there is a sweet breeze, and the grasshoppers chirrup; and the greatest charm of all is the grass like a pillow gently sloping to the head. My dear Phædrus, you have been an admirable guide."

The aim of the translator here is to reproduce the atmosphere of the original, radiant with life and redolent of joy and youth, so that it may be felt in all its freshness by English readers. The image, so familiar to the Greek, but unfamiliar and therefore cold and formal to the English reader, of a chorus accompanied by the flute, is felt to interfere with this effect of freshness and pure life and light, and is therefore suppressed. On the other hand, the "summery sound" of the breeze is felt to be so important for the main object, that this epithet is, by a license which grammarians recognize as Hypallage, transferred from its immediate context and placed at the beginning of the sentence; only, instead of "summery," which has a false poetic ring, the simpler expression "summer sounds" is used, so as not to divert the attention from the single image which is being presented to any particular feature, of from the meaning to the words. But this and the like processes, which are really indications of extreme care, are apt to be condemned as negligences by scholars who are not aware of the amount of "combing and curling" which has been bestowed on

the work, and whose canons of judgment have more in common with Sheridan's *Critic* or the "correct diction" of Protagoras than with the spirit of the *Phædrus*. Plato has himself anticipated this manner of dealing with his ideas in the conclusion of the *Cratylus*, when he says that no man of sense will like to put himself or the education of his mind in the power of names. On which Mr. Jowett very properly remarks, that in this and other passages Plato shows that he is as completely emancipated from the influence of "Idols of the tribe" as Bacon himself. We think it fortunate for the English readers of Plato that Mr. Jowett has not fallen under the influence of the idols of the school.

In revising the passage above quoted for his second edition, the translator has made only one change. This is the omission of the word "here," which in the former version represented *metadzu tone logone*. "But here let me ask you" has been altered to "But let me ask you." This change, trifling as it may seem, suggests a general consideration of some importance with reference to this whole subject.

One of the chief differences between the ancient and modern languages, and notably between Greek and English, is in the use of the particles, by which in Greek the relation of sentences and the parts of sentences to one another is often made explicit, when in English this relation is left to be understood. And this is perhaps the crowning test of excellence in English writing. A good writer knows how, without loading his style with conjunctions and qualifying words, to suggest the particular shade of expression and emphasis which he intends to convey. This skill has been rarely attained by translators of the classics. Either they neglect the particles and make a bald disjointed piece of work, or more frequently they show the exactness of their scholarship by preserving a minuteness of articulation which is intolerable to the English reader. It requires no ordinary nicety and discrimination of judgment to strike the proper balance here. Of the two failings, we must confess our preference for that which elevates the whole above the parts to that in which the feeling of the whole is obscured or lost through the pedantically minute rendering of the parts.

Mr. Browning's brilliant transcripts from Euripides are too often marred by his close adherence to what may be called (tropically, of course) "the doctrine of the enclitic *de*." In one of the finest parts of his rendering of the Hercules Furens, the ode in which the Chorus "tell us plaintively of how many evils old age is the cause," there occur these words :—

> "Never be mine the preference
> Of an Asian empire's wealth, nor *yet*
> Of a house all gold, to youth, to youth
> That's beauty, whatever the gods dispense !
> Whether in wealth we joy, or fret
> Paupers—of all God's gifts most beautiful, *in truth !*"

The italics are ours. What has "in truth" to do at the climax and turning-point of a lyric rhythm ? When has Mr. Browning been wont to give us such "sarcenet surety" in his verse ? There is only one explanation of the phenomenon. The translator was anxious that we should not lose his interpretation of an ambiguous particle. In a cursor yre-perusal (*goun ?*) of his charming version of the *Alcestis*, we were ungracious enough to note forty-eight of these bits of "pepper-gingerbread" disturbing the melodious flow of Balaustion's recital. Our list includes fourteen "at leasts," with a proportionate sprinkling of "indeeds," "assuredlys," "undoubtedlys," "certainlys," and superfluous "thens." Here is a quantitative test which may enable some New Browning Society (when other keys to Euripides have been lost) to distinguish with certainty of cleavage between the translation and the beautiful, though too ingenious, commentary.

Another difference of idiom consists in the order of words and clauses. And here also the idea of translation has been hampered with a formal and empirical rule, which is not without a partial value, and has the sanction of no less a name than that of the late Professor Conington. This rule is, that the order of the words in the original should be as far as possible preserved. If by this it is meant that the most emphatic words shall be in the most emphatic places, and that connexion and association of ideas should be carefully observed, such a precept is not only just, but obvious. But, if taken literally, it is certainly not applicable to the process of translating from Greek into English. For in Greek the first word is the most emphatic ; in English the last. The Greeks put relative before antecedent, predicate before subject, the consequence before the cause. The figure known to grammarians as *usteron proteron* (making first in thought what is last in nature) is far more frequently used by Greek than by English writers. The translator should take account of these and the like differences, not in any technical or formal spirit, but through the same instinctive sense of the relation existing between the idioms of both languages, which is his guide throughout his difficult and delicate task.

The pedantic tendencies which we are calling in question are apt to be summed up in the convenient formula, which is also not without a certain scholastic significance and value, that a good translation is the best commentary. By this it is perhaps meant that the best translator sums up the labours of previous interpreters, and adds someting more. But it is apt to be understood in another sense, which tends to cramp and warp the execution. For it is inferred that the translator has a duty not only to the English reader, but to the schoolboy or college student, whom he is to inform as to the significance of the Greek particles, on the force of a gnomic aorist, on the construction of a noun with a neuter or passive verb. But he who engages in this work is sure to be hampered and confused if he has any other end in view than that of conveying to persons unacquainted with the original as a nearly as possible the same impression, not only in detail, but in the contour and proportions of the whole fabric, which he believes to have been conveyed by the original to the mind of a Greek.

The foregoing remarks imply an assertion which to many, schoolmasters and others, is sure to sound like heresy—namely, that the object of translation "is not merely to render the worlds of one language into the words of another, but to produce an impression similar, or nearly similar, to that of the original on the mind of the reader." This ought not to be a paradox to any one who has ever been seriously engaged in translating from an ancient language. He must know that, while in the more level passages the language may be often turned "as clay to the seal," and the desired effect may be produced by an almost literal version, yet in those very places which most try his skill he finds an imperative need of a kind of alchemy by which the precious metal, when taken out of its first mould, may be fused and cast anew. He is above all things bent on giving to his work an appropriate *form*. And while he is rightly jealous both of losing anything essential and of the introduction of an alloy, he will hardly care to be bound by canons according to which his best work is that which costs him the least trouble. Why is Hope's Iliad, with all its spirit, an inadequate work ? Not because it is not literal, but

because it fails to represent some of the essential qualities of the original. Pope could no more give the impression of Homer than he could have written *Erechtheus*. He had not steeped himself in Greek, nor had he the command of the English harmonies which are most kindred to early poetry. His theory of the nature of the Iliad was more detective than his theory of translation.

We are come to the edge of questions which are well worthy of separate treatment, such as that of the difference between translations from ancient and modern languages, from poetry and from prose, that of prose or verse translations of poetry, and, above all, the still vexed question of exotic rhythms. But the discussion of these would lead us too far afield, and may be reserved for some other time.—*Saturday Review*.

The Planisphere.

A rather novel method of instruction in geography has just been invented in Paris, and promises, if properly developed, to supersede all ancient experiments, and especially that most antiquated amongst them, known as "The Use of the Globes." The new device is of an eminently practical kind, and adapted especially to the wants of those who find a difficulty in the more elementary branches of the study. It is now to be seen in full working order in the city of its origin, and no doubt the Parisian children, young and old, will hasten to visit it as soon as its merits have been duly advertised by an appreciative press. Hitherto its charms have been modestly concealed whilst the elaborate apparatus necessary for its application has been in process of preparation ; but it seems that now everything is ready, and an intelligent public is invited to come and drink at the new fountain of knowledge.

In the scientific neighbourhood of the Montsouris Observatory may be observed a huge signboard inscribed with the startling announcement, "Georama universal—the Planisphere, a geographical garden above 4000 square yards in extent, representing in relief the surface of the earth." Entering the gates, the visitor will find himself in a good-sized open space, differing but little, at the first glance, from an ordinary wall flower garden. A more attentive inspection of the ground beneath his feet will show him that he has embarked on a voyage of discovery which, in extent and completeness, if not in its actual perils, eclipses utterly the exploits of Captain Cook and of every one his successors. He will find himself walking at leisure, with fifty-league boots on his feet, through the several countries of the world, treading at each step upon a different province, or at any rate upon a different parish or commune.

A very short stride will carry him across the English Channel, the Straits of Gibraltar, or the Dardanelles. The Rhine, or even the Mississippi, may be taken in his stride ; and if he is at all a good jumper, he will be able to clear Lake Huron or the Caspian at a bound. The ascent of Mont Blanc or the passage of the Himalayas will not delay him many seconds, or make him even out of breath ; and, in fine, a few minutes' brisk walking will bring him fairly "from China to Peru," It is a thousand pities that this magic garden—worthy of a place in the "Arabian Nights"—was not discovered in time to serve as a recreation-ground for Sandford and Merton—those patterns of hopeful pupils amongst our forefathers. But it is not at all too late for the pedagogues and governesses of Paris and elsewhere to escort their charges to this paradise of practical education. They will be seen, no doubt, conducting a happy class of wondering disciples through the geographical garden, lecturing them with a new zest upon the population, history, and constitutional government, but more particularly upon the area and products of the various countries, and discoursing according to the veritable precepts and practice of the peripatetic philosophers. Maps and atlases will become only a supplementary means of imparting instruction, and may even be removed entirely from the list of studies which torment the most juvenile of students.

It is needless to insist upon the advantages of so intensely realistic a style of instruction. The stupidest dunce will hardly forget the islands of the Ægean Sea after having been compelled to pick his way among them as stepping-stones between Europe and Asia, nor persist in ignorance as to the whereabouts of Salamis and being ordered to balance himself on one foot for ten minutes or so upon the narrow territory of the mimic island. As for girls schools and girls' schoolmistresses, the garden will be an institution to be blessed by the latter as loudly as it is cursed by the former. Already the out-door exercise of the unlucky lady scholars is cut down to the most meagre limits compatible with tolerable health, the now miserable hour of recreation which was deemed advisable will possibly be spent in the Georama instead of in the Park or in the Bois. A refinement of cruelty on the part of the mistress would be to sentence a stupid or contumacious pupil to a march through the African Sahara, or promenade amongst the bleak deserts of Central Asia ; while, on the other hand, good girls might be rewarded with a luxurious seat amidst the groves of Cyprus or in the valleys of Cashmere.—*The Globe*.

Who shall Teach Modern Languages ?

So much as to *how* the modern languages may be taught. A more important as well as a more difficult question is, *who shall teach them* ? This question, though it may be a delicate one, can not in good faith be avoided. Some prevailing opinions on this subject need, I think, careful revision.

Nativity alone does not, of course, constitute qualification. How far is it essentially even a *recommendation* ?

Unquestionably the first requisite in a teacher of any language is a competent knowledge of the language to be taught. The second, which is hardly less important, is a competent knowledge of *English*. By this knowledge we mean here not merely the ability to read, write, and speak English, however perfectly, but, more than that, the power and the habit of using English as the *natural speech*, even in the actual presence of the foreign idiom and through all the trials of the class-room. That is to say, the teacher must be in full sympathy always with the modes of thought and expression which are native to the people. He must occupy *his* standpoint of idiom ; he must comprhend *his* difficulties, and be able to explain them from *his* point of view, in relation to *his* linguistic consciousness. This he can do, if a foreigner, only so far as he identifies himself absolutely with the English language, making it for the time being his *mother-tongue* and his own a *foreign language*. With those not born to English speech this is a rare accomplishment, which requires not only great familiarity with English, but that discipline which gives the power to complete abstraction and intellectual self-control ; for no relation is more intimate or more powerful than that which holds the natural mind under the dominion of the native idiom, a relation the more intimate and the more powerful because so profoundly unconscious. The difficulty with

many foreign teachers—Let me say, for example, German teachers of German, however accomplished as Germans—is often that they can not divest themselves of *instinct* that German is the mother-tongue and English the foreign language to be taught. For them German is *subjective*, English is *objective*. Thus they will unconsciously regard German from the German not from the English stand point, or, tempted from the one to the other, they will lose themselves and mislead their pupils in the confusion of a double point of view. So in the text-books of such authors one might sometimes imagine they were meant to teach English rather than German. Explanations will be directed, unconsciously, to difficulties in the English idiom, while the difficulties in the German will pass unnoticed and unexplained; and at other times the *form* of the statement will show that the writer has the German *in* his mind and the English *outside* of it. Such books reverse for us the natural order of thought and of acquisition. Such a teacher in a class-room is a foreigner to his pupils, and they are foreigners to him. There can be no full intellectual sympathy. He can not understand their difficulties, nor explain them as they need to have them explained; nor can he realize, often, why they do not see what is so clear, because so wholly instinctive, to him. Such books and such teachings not only increase the difficulty of learning, but breed confusion of method and of thought. Let us insist that French and German, as much as Latin and Greek, are for us foreign languages, and must be taught as such, with objective reference to English as the only subjective to the mother-tongue. Confessing this, we shall perhaps admit the consequence that birth implies only an added caution in the selection of our text-books and of our teachers. Nay, rather, if I could, I would have the German to teach French and the Frenchman to teach German; for then at least each will be teaching a language which he has himself *learned* by objective study, and *by experience* he will understand the wants of those who must learn it likewise. This experience will compensate for much of mere practical skill in the language. But, rather than either, I would have both French and German taught by our own American scholars, so far as these can be found with requisite qualification. Such scholars are becoming rapidly more numerous in our country. It is, we believe, only through their influence that the department of modern languages can be elevated to its proper rank and dignity in the course of higher education. I state this convction because I believe it due to my subject, not without the profoundest respect for those French or German authors and teachers who constitute the numerous and brillant exceptions.—(*From September "Home and School."*)

The Ideal and the Real.

BY MARY H. LEONARD.

One man lives prose, and another lives poetry. One sees the bald, stiff, hard actualities of his life and circumstances; the other invests these with the drapery of his own imaginations, and changes then into forms of beauty. One watches the clouds to determine whether the weather will favor his plans; the other sees in them snow-capped mountains and silver palaces, and in their changing forms finds constant and ever varying delight. One hears the call of duty, and without flinching accepts the task she gives. The other looks at his life-work in relations which emancipate it from drudgery and materialism; he sees in it something more than its use, something which is a symbol of its higher and more perfect meaning.

Shall the practical man call the imaginative man an idle dreamer? What is the ideal, and is it of necessity opposed to the real? It is the often-repeated question, "what is substance, and what is shadow?" It is like that other question which goes echoing down the centuries without an answer: "What is truth?"

Is a diamond any less a diamond when it is placed in a golden setting, than when it was encrusted in the rough stone? Is not a cloud a cloud still when the setting sun gilds it with its glory? Would a painter better interpret nature, if he should refuse to see the lights and shadows which fleck the landscape, and paint only the bare forms of hills and clouds and trees? Do we make the truth any more true, when we refuse to see the divine light shining round about it, and persist in looking at it only in the blaze and glare of this every day world? The ideal, in its best sense, is *the truth looked at lovingly*.

It is true that there may be such a thing as idle dreaming. But because the imagination *may* consume itself in wild, wasteful combustion, there is no reason why we should allow this God-given power to dwindle into deadness. It need not be like the wind harp, sounding idly to every wind that blows. It may be the master-musician which creates and sends down to the ages sweet and soul-inspiring harmonies. This power, rightly used, shows us the possible and the true in its most beautiful form. It is wrong only when it makes us find our sole delight in that which is impossible and untrue. It is right to idealize, if we will not forget the realities of life. A modern writer has said, "Every life has its actual blanks which the ideal must fill up, or which else remain bare and profitless forever."

We walk on the seashore. Here is a little brown ball, dry and mixed with sand. It is not beautiful. A wave breaks over it and sweeps it away. We look again. The sand has been washed out; the fibres have straightened and expanded themselves, and the brown, unsightly thing is transformed into the most delicate of sea-mosses. Here is a pebble, dull, and scratched, and coarse. Put it in the edge of the water; its colors brighten, and what seemed like scratches, become delicate, white-lined tracery. Is the second view less true than the first? Nay, it is the more true, for it reveals to us the beauty that already existed. So the translucent medium of our own idealizations need not distort and render false; it may only brighten and vivify.

There is no work which can be more ennobled and beautified by ideal conception than the teacher's. There is no work which, wanting this, can become more irksome, painful drudgery. A young teacher comes to her work with earnestness and zeal, with a willingness to labor, and with faith and hope strong; but with powers all untried, and no real knowledge of the difficulties before her. She is met at the threshold by those who have been longer in the work with the remark, "Your enthusiasm will not last long. You will soon find that there isn't much poetry in teaching school." She enters the school room. The children are not like the children in her dreams of teaching. They seem bent on doing mischief, and every energy of her mind and body is called into action to control them. With a determination to succeed, she at last brings the school to order, and experience slowly teaches the best way of meeting difficulties that may arise; but alas, with the added power of experience, comes a lessening of interest, and at last, it may be, a positive dislike for the work. Then the teacher confesses "They were right. There

is no poetry in teaching. It is only vexations, grinding toil." Many a teacher of five years experience is ready to say, "I feel as though I were in a treadmill. I go round and round in my daily routine, seeing no goal before me, and no variety by the way. I would do anything to escape from the drudgery of my work." School officers sometimes have been even led to say, "Let us have young teachers in our schools. We consider want of experience a less evil than want of earnestness and love for the work." While the services of the doctor, the lawer, the minister, and the artisan are more valued as years go by, age and experience do not always in the same ratio enhance the value of a teacher's work. Happy is the teacher, who, when she has gained the power that maturity and experience give, retains in her heart still the freshness of feeling and interest in the work with which she began.

And is this unattainable? What if, O fellow teachers, we could throw a higher meaning into our work, and interweave within it the poetry of high and pure motive! What if we should oftener stop in correcting the errors of conduct and recitation, to look at the good in our pupils and in our surroundings; just as the gardener must sometime leave the work of weeding his garden beds to look at the beauty of a flower, or to search for buds among leaves! But this is not enough. As the artist places his easel where the light falls clearly and softly upon the picture, what if we, too, should look at our work in its best relations, and so judge it more truly, because more kindly?

Sometimes we meet with such a teacher, looking at her scholars in the light, not of what they actually are, but of what they possibly may become. To her, restless Harry is not merely a troublesome little boy, planning a piece of mischief. She thinks of him transformed into a noble man, with energies controlled and directed, who is prompt and active in every good work. The group of idle, laughing girls in the corner are mothers and teachers, showing the same patience toward their little ones that must now be exercised for them. Wilful, stubborn Joseph, with his obstinacy changed to firmness, may become a strong leader in some needed reform. So the teacher weaves around her pupils her personal interest and hopeful imaginings for the future, and thus, by a kind of divine alchemy, changes much of the dross to gold. She knows that God has placed in each human soul a wonderful possibility, and this knowledge becomes to her an inspiration. Others may see only the quiet worker in an uninteresting routine of labor; but the teacher herself, looking at her work with a divine light shining round about it, sees it rise before her in fair and graceful proportions, and with a halo round its head.

The ideal has a double office to do for us. No one can succeed in any undertaking who does not strive to realize an ideal. It is true that we can never attain our noblest ideal, for it goes before us and leads us on; and ever as it helps us attain to new heights, we yet must look up and see it above us still, for it is a winged creature, of heaven and not of earth, and its nature is to soar.

But it is also the duty, as well as the highest privilege, of all earth's workers, to some extent to idealize the real. Since pure ideal conceptions tend to enlarge and animate and glorify the life, we may form and gather them, and cluster them around the daily associations, in the spirit of the Eastern proverb, "Hold wide the skirts of thy mantle when the heavens rain gold."—(*New England Journal of Education.*)

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OFFICIAL NOTICES.

Ministry of Public Instruction.

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SCHOOL COMMISSIONERS.

County of Argenteuil, Harrington No. I.—Messrs. John Shaw and Dugald McTavish, continued in office. This appointment should have been made in one thousand eight hundred and seventy four, and the term of office shall be considered to have commenced from then. There has been no election in either case.

County of Arthabaska, Chester-Nord.—Mr. Damase Dumas, *vice* Mr. Joseph Dubois, and Mr. Arsène Lafond, *vice* Mr. Alexis Gosselin, there having been no regular election.

County of Arthabaska, Saint Louis de Blanford.—Messrs. François Hyacinthe Germain and Isaïe Côté, continued in office, seeing that the election was presided over by the parish priest.

County of Chambly, Town of Longueuil.—Mr. Louis Vincent, *vice* Mr. A. P. Jodoin, and Mr. Bruno Normandin, *vice* Mr. A. Cherrier, both of whom have left the municipality and have not been replaced by election.

County of Charlevoix, Petite Rivière.—Mr. Hippolyte Lavoie, *vice* Mr. Auguste Racine, as the election was irregular.

County of Two Mountains, Saint-Placide.—Messrs. Ephrem Baby, Esquire, and Benoît Lalonde, farmer, *vice* Messrs. Zéphirin Raymond and Pierre Vaillancourt going out of office.

County of Gaspé, Glande Arbour.—Messrs. François-Xavier Thibault, Antoine Laflamme, Prudent Cloutier, Joseph Côté and François Lapointe, junior. New Municipality.

County of Hochelaga, Village of Rivière Saint-Pierre.—Messrs. John Crawford, Henri Headley, Edouard H. Goff, Louis Lesage and Joseph Lanouette, as the municipality was not erected in time to hold the elections.

County of Hochelaga, Saint-Gabriel.—The Revd. M. J. J. Salmon, Messrs. Edward McKeown, Adolphe Levesque, Edward Fennings, and Hormisdas Bourque, as the municipality was not erected in time to hold the elections.

County of Jacques-Cartier, Village Sainte-Anne.—Messrs. Jules Tremblay and Antoine Gauthier, continued in office, as the election was irregular.

County of Jacques-Cartier, Notre-Dame de Grâces.—Messrs. Félix Prudhomme, senior, Pierre Lemieux, Daniel Jérémie Décarie, Honory Mills and Gervais Décarie. New Municipality.

County of Kamouraska, Rivière-Ouelle.—Maurice Bossé, Esquire, continued in office, as the election was presided over by the parish priest.

County of Saint Hyacinthe, La Présentation.—Messrs. François Bergeron and Eusèbe Chabot, *vice* Messrs. Narcisse Provost and André Jacques, as the election was irregular.

County of Saint-Maurice, Saint-Etienne.—Mr. Thomas Desaulniers, *vice* Mr. Raphael Corriveau, who left the municipality and has not been replaced by any election.

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BOARD OF EXAMINERS.

QUEBEC (catholic).

MODEL SCHOOL, 1st *class* (F): Misses M. Flore Catellier, M. Ludivine Lebel, M. Domitilde Pâquet and M. Lénora Paquet. 2d *class* (F): Misses M. Aurélie Bergeron, M. Anne Philomène Dionne, M. Rosalie Gagnon, M. Odile Garneau, M. Odile Gingras, M. Célina Justine Lizotte and M. Victoria Ouellet.

ELEMENTARY SCHOOL, 1st *class* (F): Misses M. Célina Chamberland, M. Léa Demers, M. Eloïse Demers, M. Dion, M. Suzanne Anna Fournier, M. Vénérende Gosselin, Félicité Perpétue Grégoire, M. Zoé Labrecque, M. Thérèse Oladie Lebourdais and M. Elise Emélie Lemay. 2d *class* (F and E): Misses M. Emélie Vermette; (F): M. Louise Beaudet, M. Caroline Bégin, M. Vitaline Boissonneau, Clarisse Victorine Boisvert, Philomène Bolduc, M. Eulalie Bouchard, M. Zélire Boucher, M. Démerise Bouffard, M. Hélène Bougie, M. Catherine Boulet, M. Léocadie Bussière, M. Séraphine Carrier, M. Paméla Courcy, M. Sara Evéline Demers, M. Félicité Denis, M. Euphémie Dussault, M. Philomène Dutil, Marie Dutil, Philomène Forgues, M. Célina Garon, M. Rose Jacques, M. Elise Laverdière, M. Elmire Aimée Lebel, M. Hénédine Morin, M. Hedwidge Ouellet, M. Delvina Ouellet, Virginie Paradis, M. Aurélie Eloïse Pelletier, M. Célina Adèle Pelletier, M. Louise Pinelle dit Lafrance, M. Pétronille Roy, M. Cézarie Plante, Marguerite

Louise Savary and Ocalcia Cordélia Sévigny dit Lafleur ; (E) : Jane Agnes Cameron and M. Helen Morissey.
Quebec, 1st August 1876.

N. Lacasse, secretary.

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MONTREAL (protestant).

Academy, 1st *class* (E and F) : Mr. B B. Banker.
Elementary School, 1st *class* (E) : Misses Jennie Barr, Eliza G. Bradford, Katie Buchan, Jane Burke, Mary Burke, Julia E. Davis, Jessie Doig, Angel A. Dowler, Isabella Fraser, Maggie S. Hunter, Annie M. Leggatt, Annie McEdward, Isabella McGregor, Susanna McGregor, Jemima A. Martin, Maggie Nichols, Janet Stewart, Elizabeth Todd, Florence Wade ; (E and F) : Annie E. Matthieu and Fanny Matthieu. 2d *class* (E) : Misses Annie Black, Margaret Blair, Elizabeth Cook, Mary McWilliams, Martha A. Martin and Mr. Wm. Johnston.
Montreal, 29th August 1876.

T. A. Gibson, secretary.

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AYLMER.

Elementary School, 1st *class* (E and F) : Miss Joséphine Cantin.

John Woods, secretary.

POETRY.

The Conscience and Future Judgment.

I sat alone with my conscience,
In a place where time had ceased,
And we talked of my former living
In the land where the years increased.
And I felt I should have to answer,
The question it put to me,
And to face the answer and question
Throughtout an eternity.
The ghosts of forgotten actions
Came floating before my sight,
And things that I thought were dead things
Were alive with a terrible might.
And the vision of all my past life
Was an awful thing to face—
Alone with my conscience sitting
In that solemnly silent place.
And I thought of a far-away warning
Of a sorrow that was to be mine,
In a land that then was the future,
But now is the present time.
And I thought of my former thinking
On the judgment day to be,
But sitting alone with my conscience
Seemed enough judgment for me.
And I wondered if there was a future,
To this land beyond the grave.
But no one gave me an answer
And no one came to save.
Then I felt that future was present,
And that the present will never go by,
For it was but the thought of my past life
Grown into eternity.
Then I woke from my timely dreaming,
And the vision passed away,
And I knew the far-away warning
Was a warning of yesterday,—
And I pray that I may not forget it,
In this land before the grave,
That I may not cry in the future,
And no one come to save.
And so I have learnt a lesson
Which I ought to have known before.
And which, though I learn it dreaming
I hope to forget no more.
So I sit alone with my conscience
In the place where the years increase,
And I try to remember the future
In the land where the time will cease.
And I know of the future judgment,
How dreadful so'er it be,
That to sit alone with my conscience
Will be judgment enough for me.

Spectator.

THE JOURNAL OF EDUCATION.

QUEBEC, SEPTEMBER, 1876.

Visit of the Japanese Centennial Commissioners to the Department of Public Instruction.

On the 13th Instant we were surprised and delighted by the visit of a distinguished party of Japanese, the representatives of their nation at the Centennial Exhibition, who had arrived at Quebec in the course of a tour of observation through Canada. His Worship the Mayor of the City, Mr. Owen Murphy, accompanied and introduced them. The party consisted of Mr. Fujimaro Tanaka, Madam Tanaka, and three Japanese gentlemen of their suite: Mr. Tanaka occupies, in his own country, high official positions, amongst which is that of Vice-Minister of Education of the Empire of Japan ; and the chief object of the visit to our Department was to ascertain particulars concerning the system of public education established in the Province of Quebec. More especially with respect to Primary or Common School Education, and to the organization sustained by the State for the education of the people at large, his inquiries and remarks betokened an enlightened curiosity and interest. Although, doubtless, every member of the party of gentlemen, as well as the accomplished lady, possesses a knowledge of the English and French languages, the conversation with Mr. Tanaka was carried on in Japanese and English, one of the other Japanese officials acting as interpreter.

In the course of the interview, many interesting facts concerning education in Japan transpired—to some of which, for the information of the readers of the Journal, we shall advert in another column. Mr. Tanaka had brought with him a number of printed official documents illustrative of the state of education in his own country, intending to present them to the Superintendent. One of these documents is a voluminous report on education in Japan for the year 1873, a work of about 600 pages, beautifully printed on fine Japanese paper, and in the Japanese characters. The use of several other languages, as well the Japanese, occurs in the other documents, especially that of English. French, and German.

As it was impossible to convey, in a comparatively brief interview, a full knowledge of all the particulars sought to be ascertained, copies of most of our printed official documents, relating to Education in this Province, were tendered to Mr. Tanaka, who accepted them with thanks, declaring that while he and his friends were much pleased by their visit to the Department, he was especially gratified by the opportunities that would hereafter be afforded, by means of those documents, of perfecting his knowledge of our Educational System, and and of profiting, on his return to his own country, by such hints and improvements as he might be enabled to derive from a careful study of their contents. It was proposed that the party should visit and inspect several of the Educational institutions in the city ; but as the Mayor suggested the impossibility of doing this, in the limited time at their disposal, without sacrificing all opportunity of taking a glance at some other objects of interest in and near Quebec, it was agreed to pay brief visits to only two of the most numerously attended primary schools, one for boys, the other for girls. To these the Mayor and an official of the Department escorted our Japanese visitors, who expressed themselves as being much gratified with what they saw of the interior arrangements and efficiency of those institutions.

Prior to their departure from the city on the 14th Instant, Mr. Tanaka and suite called again at the Department for the purpose of expressing their acknowledgements on account of the attention they had received, and their good wishes; and we have since been informed that the party left with very agreeable impressions concerning the ancient capital of the Province and its people.

Education in Japan.

The territory of the Empire of Japan, consisting of the large island of *Niphon*, three other considerable and several smaller islands, is less than that of the Province of Quebec, the difference in area being upwards of 36,000 square miles. Its population, however is nearly 30 times as large, for it numbers over 35,000,000.

Until within a few years, the Japanese Government pursued a policy of rigid exclusion with respect to other nations. The present Emperor, or Mikado, officially *Styled* "His Imperial Majesty, the Tenno of Japan," who was the second son of his predecessor on the throne, is a man of 26 years of age, and he succeeded his father in consequence of a revolution which occurred in the year 1868. Since that epoch in the history of the country, the former policy, in respect of intercourse with foreigners, has been greatly changed, and progress in every direction has been the order of the day. As was mentioned in our Journal for last May, the reigning Mikado has abandoned, the habits of seclusion practised by his ancestors—appearing in public, giving audiences to the members of the diplomatic corps employed in the Japanese Government service, dressing, eating, riding, and acting generally like an European Sovereign. Inspired by the example, if not by the express directions of the Mikadot, he leading men have exerted themselves in promoting reformatory movements throughout the Empire. In consequence, railways and telegraph lines have been constructed, machine shops and factories established with modern improvements and appliances, and foreigners, English, American, French, German, Swiss and Dutch, encouraged by the Government to come in and assist in the introduction of scientific methods of Agriculture and in the advancement of other important objects of national concern. Amongst these should be mentioned *Education*, to the promotion of which very great attention has been devoted. Formerly, although there had been schools in Japan for a long period anterior to the accession of the present ruler, the instruction imparted was of the most imperfect character, with slight benefit only to the upper classes of the people, leaving in a state of hopeless ignorance the populatton generally, including the cultivators of the soil, artisans merchants and women. But within a few years of the advent of the reigning Mikado this state of things has been revolutionized. Systems of education, elementary, intermediate on academical, collegiate and university, have been established, and a general school law adopted, by which attendance school is made compulsory for every child over 6 years of age, and to continue until at least the rudiments of learning, reading, writing, and arishmetic, shall have been acquired.

The aim of the Japanese school law is to leave none, male or female, throughout the Empire, in ignorance. The supreme authority in educational matters is a Department of Education, presided over by a minister of state, and exercising a continuous supervision through the agency of subordinate bodies and responsible officials, stationed in all the Provinces, and Districts, into which the country is divided and subdivided.

From the information derived from the party of Japanese representatives who recently paid a visit to Quebec, as related in another column, we learn that the whole territory of the Empire is divided into 7 grand divisions, styled Collegiate Districts, each having a central office in a considerable city, in charge of an official who corresponds with, and is responsible to, the Department of Education. In these grand divisions are comprised 80 Provinces, whose head men are the Seignieurs and constitute, when called together, the great Council of the Japanese Empire, as well as 3 great and populous cities; also, each grand division is subdivided into 32 Academical Districts, of which each must have with in its limits one *Middle, High School*, or *Academy*. By the school law every Academical District is further subdivided into about 200 *School Districts*, whose localities must be regulated by the comparative density of the population, their ability to pay school taxes, and by other conditions, such as convenience of access to school-houses. There are upwards of 50,000 such School-Districts in the Empire. In these arrangements, so far as the Academical and the School Districts are concerned, our readers will perceive a resemblance to our system of division of the country into School Municipalities and the School Districts into which these are subdivided according to the requirements of our people.

In respect of administration, every Academical District has about a dozen *Superintendents*, appointed by the local authorities, having control over schools to the number of from 20 to 30 each, and paid from local taxes, the amount of which, when deficient for the purpose, is supplemented from the public treasury of the Empire. The Superintendents report periodically to the chief of the Bureau of the Grand Division in which his District is situated, who transmits all particulars, statistics, &c., to the Department of Education, whence they are issued in a digested form once a year, printed and published for the information of the Japanese public.

The schools are classified under 3 general heads, termed respectively Schools for *Great Learning*, for *Middle Learning*, and for *Small Learning*, and they embrace institutions analogous to various kinds known to ourselves—*Infant Schools* (for children less than 6 years of age), *Charity Schools* (for the indiguent), *Private Schools* (taught by persons having licenses), *Village Schools*, *Schools for Imbeciles*, and *Evening Schools* (for those, who, from necessity, cannot attend in the day time).

Exclusively of the schools established for particular objects, such as Infant Schools, Schools for imbeciles, &c., those of the class for *Small Learning*, which constitute the true Public or Common Schools, open to all, and at which attendance is compulsory in cases where education is not being received elsewhere, are organized to as to be of two *grades*, the *Lower* and the *Upper* grade. The Lower Grade is for children from 5 to 9 years old, and includes tuition in the first rudiments of knowledge. In the Upper Grade Primary Schools, the age for Scholars is from 10 to 13, and these are taught the outlines of *History*, *Geometry*, *Botany*, &c.

Next come the *Secondary* or *Schools for Middle Learning*, attended by youth between the ages of 14 and 18 or 19, also having courses of instruction of Lower and Higher Grades. The Lower Grade, for boys and girls from 14 to 16 years old, embrace the subjects of *Japanese and Foreign Languages*, *Geography and History*, *the Elements of Mathematics and the Natural Science*, *Political Economy* (Constitution and Statistics of Japan) *Music*, &c. For youths, from 16 to 18 or 19 years old, there are the Upper Grade Secondary Schools and Subjects, the latter comprising more extended courses of those already mentioned.

Included in the class of Secondary Schools, or Schools for Middle Learning, are private academies whose

teachers must be licensed, and schools for special objects, as *Agricultural Academics*, *Academics for Languages*, for those intended to enter commercial business, and which must be established in cities, and the *Industrial Academics*, for the special training of those who are to devote themselves to branches of industry and the industrial arts.

In the class of *Schools for Great Learning*, or Colleges proper, are to be taught the branches considered to be necessary in preparation for professional life, as *Logic*, *Literature*, *Law*, *Medecine*.

Lastly the system embraces *Normal Schools*, for the training of teachers.

In all classes of Schools fees must be paid for every scholar, even for those attending the Charity Schools for which provision is made by means of local taxation and grants of money from the public funds. Teachers for the primary schools must be selected from those who are more than 20 years of age, irrespective of sex, and who possess the qualification of having graduated from an Academy or Normal School. Teachers in Academies must be over 25 years of age, and possess a College Certificate; while the instructors employed in Colleges must have had the title of *Professor* formally conferred upon them.

We have still to notice one or two characteristic features of the Japanese System of Education. Special provision is made from the public reveneues for the education of poor scholars of decided ability, but what is thus advanced for their benefit is expected to be afterwards refunded.

Another note.worthy feature is the sending abroad, at the public expense, selected students for definite periods of time. These must be graduates of Colleges, possessing reliable certificates of good moral character,and appointed after passing examination. Their number is limited to 30 of the 1st class, who go abroad for 3 years, and 150 of the 2nd class, for 5 years. Subject to the control and directions of the central, or Education Department of the Empire, and to the supervision of the resident Japanese Ministers or Consuls, their time is to be spent in such countries as are considered most likely to afford them, the opportunities of improvement and of advancement in learning, in the sciences and arts, by means of which, after their return to their native land, they may become useful instruments for promoting the progress and welfare of the Japanese people. The United States of America, chiefly, but also Great Britain, France, and Germany, as well as Italy and Switzerland, are, as might be expected, the countries resorted to. Such a practice as that now under consideration, in the case of such a people as the Japanese—observant, imitative, ingenious and industrious—cannot fail to produe results which will influence most powerfully the national character and fortunes. From being the most exclusive community on the face of the globe, surpassing, in this respect, even their neighbours the Chinese, already their daily increasing intercourse with foreigners, and the continual influx of knowledge of what is going on abroad in the way of progress amongst other nations, imported by those students, who are mostly employed, on their return, as public teachers, the masses of the Japanese population are now steadily and rapidly becoming indoctrinated with ideas and aspirations of a far more elevated nature than could possibly have ever prevailed among them so long as they remained isolated and ignorant. Not only as relates to the sciences and the useful arts cultivated by other nations, but also in respect of social life, civil freedom, and government, great changes are taking place gradually in consequence of the feature in their system of Education now adverted to; and, judging from the information imparted by our late Japanese visitors, not many years will elapse before representative government, founded on the models of Great Britain and her more advanced colonies, will take the place of the ancient system of despotism by which, heretofore, the Japanese have been ruled.

We have not space in this article, for inserting the official statistics relative to the state and progress of Education in Japan, which would shew conclusively the correctness of the foregoing statements and remarks. Reserving these therefore, for a future issue of our Journal, we shall only add here that the last published returns, with copies of which, in English, we have been favoured by our late visitors, furnish the following results:

Number of Colleges and Schools in Japan, controlled by the Department of Education	20,608
" of Natural Institutes	52
" of pupils in Schools, Colleges, Normal Institutes and Foreign Language Schools	1,739,400
" of Teachers and Professors	38,365
Increase, for one year, ending in 1874,	
" " in the number of Schools and Colleges	7,945
" " in the number of pupils	402,118
" " in the number of Teachers and Professors	15,859

The Gilchrist Scholarship.

Since the last issue of our Journal, we have been informed of the results of the late competition for the Gilchrist Scholarship assigned to the Dominion of Canada. When the answers to the prescribed questions in the different branches—including *Latin*, *Latin Grammar* and *Composition*, *French*, *Greek* (or *German*), *Arithmetic*, *Algebra*, and *Geometry*, *English Language* and *Composition*, *English History*, *Natural Philosophy*, and *Chemistry*—have been examined by the examiners of the London University, the candidates, as well as the matriculants generally, are usually classified according to the numbers of marks which they may have gained on the values previously attached to the papers of questions. This year, of the candidates who presented themselves in the Dominion, two, both belonging to the Province of Quebec, were placed, respectively, first et third in the first class of matriculants, namely, Mr. D. C. Ross of Montreal, and Mr. Bland of Quebec, the former taking the Scholarship. This result undoubtedly bears favourable testimony in behalf of the quality of the higher education imparted in the Province of Quebec, when viewed as a test of the relative proficiency of our youth and those of the Mother Country and of the other British Colonies.

Mr. Ross, the winner of the Scholarship this year, belongs to the McGill University, at which institution, we believe, he has already graduated in the Arts. Mr. Bland is an undergraduate, in the Arts course at Morrin College, Quebec, affiliated to the McGill University, and as he is by several years the junior of Mr. Ross, our readers will concur in the opinion that he has, substantially, done himself and his college no less credit than the successful candidate. We congratulate both these young gentlemen on the result of the late competition, and we heartily wish them well in their future career.

Protestant Institution for Deaf-Mutes.

Cote St. Antoine Road, Montreal.

To Ministers, Mayors, Postmasters, Missionaries and others :

The Board of Managers of the Protestant Institution for Deaf-Mutes, Montreal, desirous to obtain reliable information, respecting the Protestant and non-Catholic deaf-mutes in the Province of Quebec, and to make known the existence and advantages of this institution for the instruction of this class of people, respectfully request you to forward to the undersigned the name, address, sex, age, circumstances and post-office address of parents or guardians of all non-Roman Catholic deaf-mutes between the ages of five and thirty years. By doing so you will not only confer a favor on the Board of Managers, but be doing an act of charity to the deaf-mute, whose parents or guardians may be unaware of the existence of an institution for the instruction of deaf-mutes in this Province.

When it is not convenient or possible to supply all the information desired, the name of the deaf mute's parents or guardians, and their post office address, or the name and address of their minister, will be sufficient to enable the officers of the Institution to communicate with the parties they desire to benefit.

The conditions of admission into the Institution are such as to place it within the reach of all deaf-mutes of school age, not mentally defective, so that poverty can be no excuse for keeping them in ignorance. These conditions and all information desired respecting the Institution can be obtained by addressing the Principal, Mr. Widd, Drawer 353 P. O., Montreal.

The Board of Managers trust that all those addressed will kindly co operate with them in their benevolent efforts, and aid them in ascertaining, as far as possible, the number of Protestant deaf-mutes of school age in this Province, which will materially assist them in determining the amount of accommodation required in the new Institution which they have in contemplation.

Communications may be addressed to any of the undersigned :

CHARLES ALEXANDER, President,
Protestant Institution for Deaf-Mutes,
Montreal.
F. MACKENZIE, Hon. Sec.-Treas.
THOS. WIDD, Principal.

—Wide Awake for September opens with Part I, of a noticeable story, "David Bushnell and his American Turtle," by Miss S. J. Prichard, in which figures the first of our sub-marine war-ships. Upon this explosive "Turtle" Benjamin Franklin and others built great hopes in their early struggle for independence. Farther on is a pleasant camping-out story by Mrs. Nason, "A Day on Lake Cupsuptue," and a Centennial story by the Editor, "Mrs McAllister's Company," a rollicking account of some pretty children's fun. There are poems by Mary Clemmer, Clara Dory Bates, and others. "Mamma's Dolls," by the Editor, is charming, both picture and poem. Part II, of "A Child in Florence" is full of delightful art-gossip. "The House of Umbrellas," and "Little Boy Blue;" each honest transcripts of real child life, together with the two serials, "Good for-Nothing Polly," and "Nan : the New-Fashioned Girl," and the various departments, complete an excellent number of an excellent magazine.

—Wide Awake for October is a bright and fresh as a June sunrise. It is full of good things, both for young and old. None of us can afford *not* to read "Two Burial Places of Florence," by Louise Chandler Moulton. We get a glimpse of the graves of Theodore Parker, Elizabeth Barrett Browning. Walter Savage Landor, and many others dear to all English-speaking people. No. V, of the "Behaving Papers" tells the children "How to Give a Party." "How One Woman Camped Out" gives Lady Baker's share in Sir Samuel Baker's expedition into Central Africa to suppress the slave-trade.

The article, "A Dolls' Fair," will rouse enthusiasm throughout the country. Children of the right sort will everywhere respond, and aid so benevolent and interesting an enterprise.

There are three excellent stories, "David Bushnell," "Charlie's Week in Boston," and "Unto Babes," by Sara J. Prichard, Charles E. Hurd of the *Boston Transcript*, and Helen Kendrick Johnson.

The little people will find their special delight in No. IV, of the Classics of Baby-land, "Puss in Boots," "Funny Hat," by Margaret Eytinge, and "Pinkie-Winkie's Mamma."

Only $2 per annum. Edited by Ella Farman. Publishers, D. Lothrop & Co , 30 & 32 Franklin Street, Boston.

Home and School, published at Louisville, Ky., may be safely said to be *par excellence* the educational journal of the West, or, for the matter of that, in the United States. Every month it has handsomely illustrated articles on natural history, animals and flowers, which show original research on the part of the writers, and which supplement the information found in text-books; essays, strictly educational, pertaining to language, history, literature, and art; papers concerning methods of teaching; in short, every subject that belongs to education is discussed in one or more of the twelve numbers that make up each volume. In the number for September we find Bats, Ostriches, the wild-flower Liver-leaf, all superbly illustrated; a lively commentary on some of Shakespeare's commentators; a philological article on the Position of Modern Languages in the Higher Education; some practical notes on Elocution, etc.; besides the editor's department of general intelligence, book-reviews, and scientific researches and discoveries—all making a highly interesting and instructive record of educational progress during the past few weeks. No teacher can afford to be without this magazine, and no intelligent man or woman would fail to be interested in its contents or profited by its teachings.

MISCELLANY.

Working Ways of Writers.—If a collector of curious historical bits could be found, with industry enough to find out what the peculiar working habits of great literary men and women have been, he might make of his material one of the most fascinating of books. There is no limit to the peculiarities of mental action, and these peculiarities for the most part determine the working ways of all intellectual toilers. Dr. Johnson, it is said, always knew every word of a propose essay before putting pen to paper.—He would not only mark out the main features of the work in his mind, but would actually compose the entire piece, and hold it word for word in his memory until he was ready to write, when nothing remained to be done except to transfer the completed but as yet unwritten essay to paper. Byron's habit was the exact opposite to this. He thought with his pen in his hand, drawing each new inspiration from the words already writen, changing, erasing, interlining as he went, until the result was wrought out, and that result was very often quite an unexpected one to the poet himself, apparently. Gray, the author of the "Elegy in a Country Church-yard," found writing very slow and very laborious. We are told that he would never leave a line until it was finally completed. He would alter and amend it over and over again, but would never begin a second line until the first was complete.—Tennyson seems never to have been done with the work of emendation. His extreme fastidiousness shows itself more strongly in his inability to satisfy himself than in anything else. He not only writes and re-writes his poems, but has them printed in his own house, so that he may see them in type and give them some final touches in that shape before sending them to the publisher. But even this does not satisfy him, and so we have lines altered here and there in second editions. In the poem *Enid*, for instance, as it first appeared he wrote "had wedded Enid ;" but, in the later editions, it reads 'had married Enid,' a change which was made because of the poet's discovery, after the poem's first publication, that the first syllable of the name Enid is short, while he had thought it long. His "Charge of the Light Brigade" underwent very much greater alteration than this in passing through different editions. In truth, it is

hardly the same poem now that it was when it first thrilled the world in the reading.

Mrs. Browning is given to similar post-publication alterations, and nothing could be more provoking. When people have come to know a poem or a line, it becomes in a sense their own property, and any alteration, even though it works improvement, seems a sort of wrong to the reader, forever spoiling the poets' gift to him.

Woodsworth made his poetry during his long morning walks, and upon returning would go to bed, and dictate to an amanuensis while he ate his simple breakfast.

Mr. Dickens once said to a friend that he always arranged the catastrophe of a story in his mind before thinking of any other part of it, and that the events leading to it were made solely for that purpose. To this, however, the 'Pickwick Papers' was clearly an exception, as every reader would discover, even without the history of that work which Mr. Dickens had himself given us. From the fact that at his death no memoranda of any importance with regard to his unfinished 'Mystery of Edwin Drood' were found among his papers, it seems probable that Mr. Dickens worked almost entirely without notes. Sheridan, on the other hand, made copious memoranda; and not only so, but he carefully wrought out his ideas in his note books, altering and improving them from time to time until finally they were ready to be transfered from their nursery to his books or his speeches. His note-books thus became quite as interesting as any of his published works. We find in them not only the germs of his most brilliant witticisms, but also the witticisms themselves in every stage of their growth, from the first crude conception to the finished epigram. He made notes, too, of the various characters he intended to introduce into his dramas, and these also under went many changes while yet in the note-book stage of their existence.

Sir Walter Scott never found composition so easy as when children were playing in the room with him; while Bulwer, on the other hand, thought absolute solitude necessary to successful literary work.

Gems of Thought.—Don't worry yourself about another man's business. A little unselfishness is sometimes commendable. Don't attempt to punish all your enemies at once. You can't do a large business with a small capital. Don't imagine you can correct all the evils in the world. A grain of sand is not prominent in a desert. Wives and mothers should always strive to make home happy, so that it may be a place of pleasure for the husband and father. It has been remembered that "no statue which the rich man places ostentatiously in his windows is to be compared to the little expectant faces pressed against the windowpanes watching for father, when his day's occupation is done." How much is contained in that one word "happiness!" How much more happiness there would be if we thought of the happiness of others rather than of our own? But, instead, we are often so selfish in looking out for our own pleasures, that there is not much room left in our hearts to think of anybody else. It is a good and safe rule to sojourn in every place as if you meant to spend your life there, never omitting an opportunity of doing a kindness, or speaking a true word, or making a friend. Seeds thus sown by the wayside often bring forth abundant harvests.

"*Mother.*"—It is the cry of the infant, just from the cradle; it is the only balm that will heal the wounded heart in youthful days. 'Mother, I'm hurt;' 'Mother, I'm tired,' 'Mother sing to me, rock me tell me stories.' It is always 'Mother,' with the child and the lad. No one like mother. No hand that falls on the fevered brow so softly as hers; no words so sympathetic as those that pass her lips. The house would be a grave without her. Life would be a dreary, thorny road without her warning voice and guiding hand. A father may be kind, may love none less, but the wearied child wants the mother's arms, her lullaby songs; the caresses of her gentle hand. All childhood is a mixture of tears and joys. A kind word brings a smile, a harsh word a sigh, a fall is pain, a toss, a joy. The first footsteps weak and trembling grow stronger by the guidance of a mother's love. The little wounds, the torn clothes, the headaches, and heartaches, the trials, all vanish at the words of a mother, and there is built up in the heart of every man an edifice of love and respect that no crime can topple down—no dungeon can effect. And a lad grows to be a man only to find that mother is the same. If he errs, she weeps; if he is good and manly she rejoices. Hers is the only love that lasts—endures forever. The wolf of starvation may enter the door, but her love is only tried to shine the brighter. All the world may call her son a criminal, but the mother only believes it not. Trial may beset you, storms gather over you, vexations come, ruin drags you down, but there is one who ever stands firm in your cause, who will never leave you. The criminal on the scaffold has suffered in feeling because his bad deeds would cause a pang to his mother's heart. The low and wretched dying in some dark abode of sin, have died with that name on their lips. There is no praise like her praise there are no sad tears that pain us so much as hers.

Weather Proverbs.—Throughout the northern countries of Europe July is always regarded as the hottest month of the year, although the sun has already commenced its downward course. As is well known, the so called Dog-Days begin on the 3d of July and continue into August, during which time great heat unfrequently prevails. The husbandman looks for calm and bright weather diversified by mild showers of rain to bring on his crop in due season,

"July, God send the calm and fayre,
That happy harvest we may see,
With quiet tyme and hearthsome ayer,
And man to God may thankful bee."

"A shower of rain in July, when the corn begins to fill,
Is worth a plough of oxen and all belongs there till.

"No tempest, good July,
Lest corn come off blue by (mildew)."

There is a general belief that during July a spell of fine or wet weather may be expected—the former if the spring has been wet, the latter if dry. This is the result of accurate observation, and cannot be gainsayed; but unfortunately the proverbs embodying this idea have been attached to particular days, which in themselves cannot, of course have any effect on the succeeding weather. The special days are July 13th, 15th, and 27th, the latter of which is 'Old' Saint Swithin's Day. They all point out to the particular weather on those days as heralding a duration of summer weather.

"If the first of July be rainy weather,
It will rain more or less for four weeks together.
"If Billion's Day be dry there will be a good harvest."
"If the deer rise dry and lie down dry on Billion's Day.
There will be a good harvest.

The last special day is sacred to St. Swithin on whom great reliance is placed by the common people. Observations during several years prove, as might be expected, that this confidence is not warranted so far as the particular day is concerned, but that a spell of dry or wet weather is very common about this time. Consequently, if the proverbs connected with this day are transferred to the three or four days collectively on each side of it, the general weather experienced throughout that week is no bad index to that of the future.

"St. Swithin's Day, if thou dost rain,
For forty days it will remain;
St. Swithins Day, if thou be fair,
For forty days 'twill rain nae mair.

"If Swithin greets, the proverb says,
The weather will be foul for forty days."

"In this month is St. Swithin's Day,
On which if that it rain, they say,
Full forty days after it will
One more or less some rain distill."

The same day belongs to two other saints, Processus and St. Martin; and a Latin proverb tells us that 'it suffocates the corn if it rains on the feast of St Processus and St. Martin.' The homely saying, 'St. Swithin is christening the apples, applied to rain on that day is a fitting conclusion to the proverbs of this month.—*Leisure Hour for July.*

ABSTRACT FOR THE MONTH OF AUGUST, 1876.

Of Tri-Hourly Meteorological Observations Taken at McGill College Observatory. Height Above Sea Level, 187 Feet.

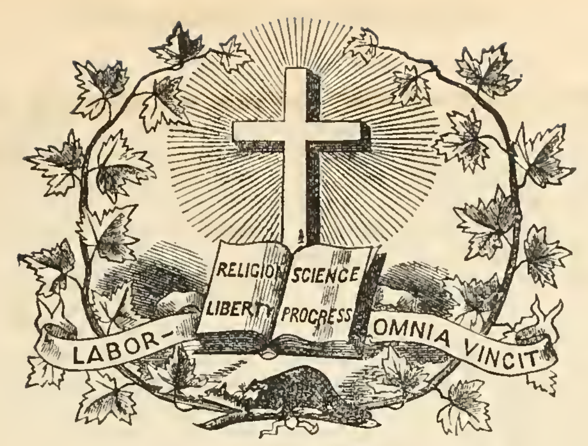
Day.	Thermometer. Mean.	Thermometer. Max.	Thermometer. Min.	Thermometer. Range.	* Barometer. Mean.	Barometer. 2 Max.	Barometer. 2 Min.	Barometer. Range.	†Mean Pressure of Vapour.	‡ Mean Relative Humidity.	Wind. General direction	Wind. Mean Velocity in m. p. hour.	Sky Clouded in Tenths. Mean.	Sky Clouded in Tenths. Max.	Sky Clouded in Tenths. Min.	° Rain and Snow Melted.	Day.
1	69.53	76.8	60.6	16.2	30.1332	30.211	30.015	.196	.4878	68.2	N. E.	6.8	0.6	1	0		1
2	72.18	83.3	62.3	21.0	30.2395	30.289	30.208	.081	.5483	70.2	S. E.	4.8	0.5	1	0		2
3	73.65	82.2	63.6	18.6	30.1886	30.267	30.095	.172	.5400	66.3	S.	8.5	4.8	9	1		3
4	75.35	84.0	67.7	16.3	30.0841	30.131	30.037	,094	,6533	72.3	S. W.	6 2	7.6	10	1		4
5	80.02	89.2	70.6	18.6	30.0722	30.121	39.031	.086	.7383	73.0	S. W.	5.8	3.0	6	1		5
Sunday 6		92.2	73.7	18.5							S. W.	8.9					6 Sunday
7	79.08	87.0	72.4	14.6	29 9695	30.041	29.873	.168	.7210	73.2	S. W.	13.2	6.2	10	1	0.15	7
8	74.66	84.0	67.2	16.8	30.0062	30.930	29.963	.067	.5273	62.5	N. W.	10.3	0.6	4	0		8
9	75.91	86.0	63.6	22.4	30.0813	30.122	30.048	.074	5300	60.2		5.1	1 6	6	0		9
10	77.35	89 0	64.7	24.3	30.1308	30.169	30.096	.073	.6258	67.8	S. W.	4.8	2.3	4	2		10
11	78.22	88.4	67.9	20.5	30.1186	30.174	30.063	.111	.7056	73.8	S. E.	3 5	5.0	8	2		11
12	78.76	87.8	69.3	18.5	30.1131	30.195	30.075	,120	.7290	78.7		4.3	7.7	10	3		12
Sunday 13		91.0	72.0	19.0								3.4			.		13 Sunday
14	82.13	90.6	71.4	19.2	29.9583	30.054	29.823	.231	.7446	69.0	S. W.	6.4	5.0	10	2	Inapp.	14
15	72.90	84.7	61.1	23.6	29.7993	29.924	29.735	.189	.5957	72.7		9.4	5.5	10	0	0.85	15
16	62.86	69.8	55.5	14.3	30.0291	30.069	29.957	.112	.3822	67.0		7.3	3,7	10	0	0.01	16
17	65.48	76.7	56.0	20.7	30.0202	30.060	29.977	.083	.4682	74.8		3.6	5.6	10	1	Inapp.	17
18	68,61	77.9	59.2	18.7	29.9280	29.998	29.831	.167	.4892	71.7		5,0	4 1	10	0		18
19	67.16	69.2	64.8	4.4	29.7271	29.778	29.657	.121	.6107	91.7	S.	8.8	9.9	10	4	0.97	19
Sunday 20		67.0	51.5	15.5							N. W.	12.5					20 Sunday
21	56.21	66.0	48.4	17.6	30.0648	30.152	29.964	.188	.2850	62.6	N. W.	11.1	7.5	10	0	Inapp.	21
22	64.06	75.4	55.4	20.0	29.9625	29.993	29.899	.094	.3530	59.6	N. W.	7.5	5.1	10	2		22
23	63.47	70.0	56.9	13.1	30.1007	30.185	30.004	.181	.3413	58.8	N. E.	6.2	1.1	8	0		23
24	64.30	76.4	53.3	23.1	30.1070	30.170	30.004	.166	.4195	71.5		4 2	5.5	10	0		24
25	70.22	82.3	59.7	22.6	29.8107	29.960	29.653	,307	.5477	73.2	S.	8.8	7.2	10	1	Inapp.	25
26	62.40	70.0	55.5	14.5	29.4801	29.907	29.792	.115	.3525	63.1	W.	11.1	4.5	10	0		26
Sunday 27		60.7	51.5	9.2							N. W.	14.4				Inapp.	27 Sunday
28	58.03	66.4	48.8	17.6	30.0410	30.076	20.016	.060	.3283	68.2	N. W.	10.1	3.0	9	0		28
29	63.16	73.0	54.6	18.4	30.0291	30.076	29.985	.085	.3661	63.8	S. W.	4.8	1.7	5	0		29
30	67.02	78.9	53.7	25.2	29.9300	29.995	29.865	.130	.4097	62.5	W.	5.3	0,7	3	0		30
31	69.77	78.8	53.8	24.9	29.8341	29.898	29.767	.231	.5140	69.9		6.5	7.0	10	0		31
Means	70.092	79.18	60.86	18.32	30.0117			.1371	.5190	68.74		7.05	4.3				

Barometer readings reduced to sea-level and temperature of 32° Fahr. † Pressure of vapor in inches mercury. † Humidity relative saturation, 100. Observed. Ten inches of snow is taken as esqual to one inch of water.

Mean temperature of month, 70.092. Mean of mean max. and min. temperature, 70.02. Greatest heat was 92.2 on the 6th; greatest cold was 48.s on the 21st,—giving a range of temperature for the month of 43.8 degrees. Greatest range of the thermometer in one day was 25.2, on the 30th; least range was 4.4 degrees on the 19th. Mean range for the month was 18.43 degrees. Mean height of the barometer was 30.0117. Highest reading was 30.289 on the 2nd; lowest reading was 29.653, on the 25th—giving a range of 0.636 inches. Mean elastic force of vapor in the atmosphere was equal to .5190 inches of mercury. Mean relative humidity was 67.74. Maximum relative humidity was 98 on the 19th. Minimum relative humidity was 44, on the 22nd. Mean velocity of the wind was 7 miles per hour; Greatest mileage in one hour was 24, on the 27th. Mean direction of the wind, W. S. W. Mean of sky clouded was 43 per cent.

Rain fell on 9 days. Total rainfall, 1,98.

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Drawing as an Element of Advanced Industrial Education.

BY C. B. STETSON.

A paper read before the Technical Section of the National Teachers' Association, at Baltimore, July 13, 1876.

The demand for advanced industrial education, which has grown rapidly of late years, must continue to grow for years to come, in every department of human industry. This is evident from the general tendency of civilization, from the fact that brain is counting more and more, while brawn is counting for less and less, in nearly every kind of labor. The construction of buildings, of machinery, of ships, and of bridges, the working of mines and the cultivation of the soil, and all the better class of manufactures call for a liberal education of its kind, no less than do law, medicine, and theology. The call, it may be repeated, is already urgent for large numbers possessing what may be vaguely termed advanced industrial education. What is this? The present paper proposes to consider one of its chief elements.

INDUSTRIAL VALUE OF DRAWING.

Whether we consider the technical instruction required by men, or by women, for success in industrial pursuits, we shall find drawing to be the most essential single element of such instruction in all its grades,—the lowest and the highest. The truth of this assertion any one can substantiate for himself, by personal inquiries among the more intelligent of the men and women engaged in the different industries, and by reading the official reports of the various commissioners who have been appointed from time to time during the last twenty-five years, by European governments, to investigate the subject of technical instruction. It is true that a knowledge of chemistry, for example, will be found more essential in some employments than a knowledge of drawing; yet when the different employments are taken as a whole, it will be at once seen that drawing must be conceded the first place in industrial or technical education. This might seem a reckless assertion, were it not fully sustained by the very extensive investigations which European governments have made, and whose results, having been published, may be read of all men.

THE COMPREHENSIVENESS OF DRAWING.

Neither architecture, sculpture, nor painting, can get on without drawing. For only one of these—painting—is color an absolute essential. Hence it is that architecture, sculpture, and painting are so frequently spoken of as the "arts of drawing."

Under architecture may be grouped, so far as general principles of drawing are concerned, all kinds of construction, apart from building, as machinery, locomotives, ships, bridges, fortifications, etc. For a like reason, under sculpture may be grouped stone cutting for decorative purposes, wood-carving, varieties of metal-working, all ornament in relief, modeling for the purposes of pottery, glass manufactures, etc. And when color is employed for decorative purposes, as it must be upon a flat surface,—cloth, for instance, if to be decorated,—the color (except in case only an even tint is laid on) must conform to some pattern predetermined by drawing; and this, whether the color be applied in flat tints or according to the principles of chiaroscuro. Thus it happens that every object made by the hand of man, if its form is of any consequence, is indebted, with rare exceptions, to drawing, for its form, or its decoration, or for both.

Drawing not only expedites construction in all cases, but oftentimes construction is absolutely impossible without drawing. In order to the greatest expedition and economy, there must not only be professional draughtsmen to make the original drawings, but the workmen must know at least enough of the principles on which the drawings are made, to be able to work from them understandingly and without constant supervision.

CULTIVATION OF THE TASTE.

What has just been said of drawing refers to it only as a help in construction, regardless of whether the object made be beautiful or ugly. Now, there is no one who does not prefer the beautiful to the ugly, or what he thinks to be beautiful to what he thinks to be ugly. Beauty has a commercial value which cannot be easily overrated. Instruction for industrial purposes must, therefore, aim to cultivate the taste as it applies both to the form of the object and to its decoration. Though the latter adds nothing directly to the usefulness of an object, yet it often adds so much to its market value that almost everything now made receives more or less of ornament. The taste can be better developed by means of drawing than by any other one thing.

A refined and intelligent taste in respect of objects that appeal to the eye is next to impossible without some knowledge of drawing. One may like or dislike, but little more. There should be good taste, it may be observed, on the part of the consumer as well as producer. Indeed, it is a truism that the taste shown in the manufactures of a country never rises, except in special cases and for special reasons, above the taste of the people,—of the home consumers.

DANGER OF NARROW VIEWS.

But what is drawing? Is it something fixed and determinate, or something vague and nebulous, which each may define to suit himself? One may well be excused for asking such questions in this country, where he finds such divergent views held by persons who, having but slightly examined the subject and got a glimpse of one of its many aspects, nevertheless think they know all about it.

Drawing, when regarded in both, its artistic and industrial applications, resembles mathematics in comprehensiveness. It would be quite as reasonable for a person who had mastered arithmetic only to claim that he knew all about methematics and its applications, as for a person who had learned to draw from the solid only to claim that he knew all about drawing. From nothing eles does drawing suffer so much in this country, and will continue to suffer so much the next ten years, as from the very narrow views held by so many person who think they understand all about its scope, its practical and artistic applications, and its value as an educational discipline. It is to these persons that large numbers, who know nothing about drawing, look for leadership. When the blind lead the blind, there should be no ditches in the path; but in dealing with instruction in drawing, one has special need of good vision. There are dangerous pitfalls on all hands.

Let us consider some of the general characteristics of drawing. With these the details, which are too numerous to be considered on the present occasion, must all harmonize.

DRAWING TWO DIMENSIONS.

One of the first things which should be noticed is the great fact that all varieties of drawing may be reduced to two class: representation of only two dimensions—length and breadth; and representation of the three dimensions—length, breadth, and thickness. A clear understanding of the general difference between these two things will help one greatly towards a clear comprehension of the whole subject.

When only two dimensions are drawn, there can be no representation of thickness, of relief, of solidity. Consequently all perspective effects, all light and shade, and all color, when applied according to the principles of chiaroscuro, are out of the question. No devices for suggesting solidity, for the purpose of carrying the eye below the surface of the paper, are properly in order. Lights and darks may be indicated by half-tint, or flat tints, showing that the surface is raised or depressed in parts; and colors may be applied in flat tints, as is usually done for the decoration of woven fabrics, of flat walls and ceilings, and even in the representation of the human figure in stained-glass windows. In a word, when only two dimensions are drawn, all true pictorial effects, everything of the nature of chiaroscuro, are among the impossibilities. Hence the drawing of two dimensions compared with the drawing of the three dimensions, is a very simple affair; yet it is of almost endless application in the different industries.

It takes for its basis the figures and problems of plane geometry and their applications. Construction of every kind,—building, machinery, furniture, sail-making, and so forth,—requires a knowledge of such drawing. It is also in connection with the drawing of two dimensions that nearly all the principles of design, applied in determining the forms of objects, or their decoration, are best learned. Not only what should be the due proportions of objects, and what the principles to be observed in flat ornament, when only lines and conventionalized forms are used, but many of the principles which good taste require to be observed in relief decorations, can be taught in this connection. And right here it is that instruction in the great decorative styles of different ages and nations properly begins. Classic art can no more be neglected than classic literature.

When only two dimensions are represented, it is evident that flat copies, like prints, are the proper things; indeed they are often the only copies which are possible. Even when relief copies are used, they must be treated as though they were flat. The copies should be of the very best, since the development of the taste for the beautiful in the outline and proportion of the objects and in their decoration, is one of the prime ends to be sought in this kind of drawing. But the learner should by no means, be limited to drawing from copies; he should be often exercised in the production of original design, both for objects and ornament. He thus acquires facility in making intelligent applications of whatever principles he may have learned, and learns to draw and to design, at the same time. Indeed, original design is the best proof that one understands the principles of design, as original composition in the best proof that one understands the principles of grammar and rhetoric.

The very great industrial value of drawing two dimensions has now been shown in a general way. Its educational value is also very great. Yet there are not a few persons, who, regarding themselves as specially wise in matters which pertain to drawing, cry down all drawing that does not carry the eye below the surface of the paper,—that does represent the three dimensions.

DRAWING THE THREE DIMENSIONS.

When we come to representing the three dimensions,—length, breadth, and thickness,—then perspective and and all the other effects of chiaroscuro are in order, or not, according as we desire simply a pictorial result, an end in itself, or to make a drawing for the guidance of

workmen. Here he will be well to make a note of the decided difference between the two modes of representing solidity for the two purposes named.

When the three dimensions are repesented for artistic or pictorial purposes, the drawings are made from actual objects, or else imaginary objects are drawn as though they were actually in existence and before the eye. In neither case can the drawings be used for the purposes of construction, except in a merely incidental way. Drawing from the solid is only indirectly of service in the industries, but that indirect service is very great.

When the three dimensions are represented for the guidance of the artisan, the drawings, instead of representing what already exists, represent an object which is to be made. That the object may be made from the drawings, they must represent its inside as well as its outside, its rear as well as its front. The object must be shown in parts, and not as a whole, and each part must be drawn to a scale. Of course there can be no perspective,—none to the effects of chiaroscuro.

Such being the radical difference between the two modes of represending solidity,—the one for a pictorial, the other for an industrial purpose,—that it is not a little astonishing to find persons, even in this country where ignorance of drawing is so great, who hold that, even for industrial purposes, drawing from the solid, with all the difficulties of chiaroscuro, is the kind of drawing which should be specially taught in the public schools. In their opinion all other kinds of drawing may be safely ignored, or should at most receive but slight consideration. For a moment contrast this opinion with the lesson taught by the Centennial Exposition. If you examine all the manufactured products there displayed, you will not find one that was made from the perspective drawing. Some of the more elaborate decoration, however, will show effects of chiaroscuro that can be learned only by drawing from the sofid and from natural objects.

Drawing from the solid, as a part of advanced technical or industrial education, must by no means be ignored. It affords an admirable discipline for the hand and eye; it trains the imagination to realize solid form in space; it increases sensibility for delicate gradations of light and shade; and so it must always be regarded as an essential element of technical as well as purely artistic education. It is only necessary to see that it occupies its legitimate place. A word as to the general course which instruction in this kind of drawing should take.

To be continued.

Grammar for Little Ones.

MAKING WORDS.

When we add *er* to the end of a word, it sometimes makes it mean one who does the deed, or who works the work.

Thus a man who can hunt is a hunter, and a man who can sing is a singer. A miller is a man who works in a mill, and a farmer is a man who works his farm with his men and horses.

A man who keeps anything is a keeper; if he keeps a shop he is a shop-keeper, and if he keeps an inn he is an inn-keeper.

When I sleep I am a sleeper, and when I eat I am an eater; when I walk I am a walker, and when I read I am a reader.

Father and mother say that I am a player more than a worker. It is better to be a lover than a hater; and it is better to be a well-doer than an evil-doer.

But when we add *er* to others words it has quite another meaning. When we add *er* to deep the word is deeper; and deeper means more deep. In the pretty brook that runs by our door, the parts where it runs fast are not very deep, but the still pools are deeper. The mill dam is deeper than the pools of the brook, and the well is deeper than the mill dam. As the well is deeper than all the others we call it the deepest.

We say the pools are deep, the mill dam is deeper, but the well is the deepest of them all. The word deepest is made by adding *est* to the word deep.

In the same way Ann is smaller than I am, and my little brother is smaller still. I am taller than Ann is, Ned is taller than I am, Mother is taller than Ned, and father is taller than mother. He is the tallest of all.

—*Monday Morning.*

Great Mistakes.

To set up our standard of right, and judge people accordingly. To measure the enjoyments of others by our own. To expect uniformity of opinion in this world. To endeavor to mould all dispositions alike. Not to yield to immaterial trifles. To look for perfection in our own actions. To worry ourselves and others with what cannot be remedied. Not to make allowance for the infirmities of others. To consider every thing impossible which we cannot perform. To expect to be able to understand everything.

Conservatism in Spelling.

BY GEORGE F. CHACE.

It is alleged that the orthography of the English language is illogical, inconsistent, and difficult to remember. Radicals advocate a spelling reform which shall remove these faults. Assuming that the multitude will then learn to spell, they proceed to indicate the means of reform.

Admitting the allegations to be, in a measure, true, I deny the feasibility or the desirability of radical change. When a child is born, it inherits the constitution and temperament of its parents, and in a lesser degree, of its more remote ancestors. Careful training may foster what is good, check what is evil,—may, to a certain extent, control the physical, moral, and intellectual growth. To attain the best results, even thus far, implies an intelligent, unrestrained, unopposed guide, religiously obeyed. But training cannot wholly eradicate constitutional tendencies. Training cannot transform ugliness into beauty, deformity into symmetry. Training will not make an idiot become a Plato. Barring accidents, a child is intelligent or stupid, comely or ugly, to some extent virtuous or vicious, according to his ancestry. His parents and teachers must take him as he is, and make the most of him. A sculptor could design a better physical man (Adam accepted) than ever breathed the breath of life. Adam was made a "little lower than the angels." Humanity of to-day has inherited the accumulated imperfections of numerous generations of ancestors.

The law of language does not differ from the law of life, Given a few roots, certain laws of combination and sound, and a language could be constructed perfectly logical and consistent,—a complete machine. But language is not a machine; it is a growth, and liable to all the accidents of growth. Its formation has depended upon the wants, the virtues and vices, the harmonies and discords of mankind. You may prune and manure your

trees as much as you like. Their beauty, strength, and fruitfulness still depend upon the soil, the stock, and the weather. An adequate genius, with given materials, might build a speech for the English speaking people; but the result would not be the English language. *That* is a fixed fact, and reforms cannot overstep certain limits without attacking the very constitution.

Before the days of printing, many irregularities in spelling occurred, which have since disappeared. It was wise to drop the *k* from *musick*, *physick*, etc., because it never had any business there. It is well enough to drop *u* from such words as *honour*, because it then becomes its Latin prototype, *honor*, and at best has only a cousinly resemblance to the modern French form *honneur*. It may be tolerable to write *theater*; instead of the "logical" and "consistent" *theatre*; for the multitude neither know nor care of its origin from *theatron*. So they first mispronounce theatre as if it ended in "ter," and change the spelling to suit bad orthoëpy. moreover, there is no reason in the nature of things why *ter* is any easier to *remember* than *tre*. Before learning the "powers" of letters, a five-year-old would as soon pronounce c-o-w "cat," as anything else.

Must the scholar who sees a logical consistence, an etymological history, in many anomalies of English orthography, give up his consistency because some ignoramus, or even some scholar, has a poor memory? Let the forgetter buy a dictionary and accept the situation. A bad memory is an unfortunate defect, just as much as lack of mechanical skill, or of physical strength. Must the skilled mechanic throw his tools away because a bungler cannot make a watch? Must the athlete chop off his right arm because it fatigues a consumptive to drive a nail?

Some people are fond of saying that George Washington was a bad speller. Was being a bad speller what made him "Father of his country"? Then he has more patriotic sons than we had supposed. We are told that words should be spelled as they sound. As they sound to whom? To the ignorant, who have only sound for a guide? Why do the latter write "plaze," "plese," "plas," *anything* but "please?" Wonderful *consistency!* As they sound to the learned? How shall they form a system out of the heterogeneous elements of the English language? How wonderfully agreed orthoëpists are as to the sounds of words! As well might you expect the child of an Octoroon mother and Chinese father to grow up a full-blooded Caucasian.

Again, is the inconsistency of sound in "plough" and "cough" any worse than in "plow" and "blow"? What is the use of the silent "gh"? What is the use of the silent *ent* in French *Ils aiment?* How shall we explain ai (ä) in *aiment*, *ai* nasal in *pain*, which the boarding-school miss burlesques *pang*, ai (ê) in *faisant?* Is the English the only inconsistent language? Students of comparative grammar understand these things and can explain them. Must the fruit of ages be destroyed because some cannot enjoy them? Must the mountain forests be cut away to raise saplings upon the prairies? I believe in reform; but let it be a real reform; a banishment of vulgarisms, a dropping of useless, unmeaning irregularities in spelling or diction.

Here is a place for conservatism. Unchecked radicalism leads to revolution and anarchy. I do not suppose my protest will weigh much with modern radicals. I am not Mrs. Partington. I shall not attempt to mop out the Atlantic ocean. But when I see the stormy flood coming, I will put on the weather-strips, and, as long as possible, keep the door barred.

The trouble with learning to spell, or learning anything, as far as the rising generation is concerned, lies not in the subjects taught. Ignorance does not exist because, teachers are not well trained, faithful, and scholarly, nor from ill-appointed schools. It exists (I write in no misanthropic spirit) because the present generation of children, carried on the intellectual shoulders of their teachers, reared upon dime novels, nursing bottles, and "soothing syrup," lacks *brains and industry*.—*New England Journal of Education.*

We take the following from the *Montreal Gazette* of the 29th September, and recommend it to teachers for perusal.

Teachers' Conventions.

It is pleasant to learn that the class of persons who enter the Normal School for the purpose of preparing themselves for the position of teachers is yearly improving. In native intelligence, in literary acquirements and in aptness for the profession to which they intend to devote their lives, the pupil teachers of the present are far in advance of those who where accustomed to present themselves for admission some ten or fifteen years ago. This important revolution is mainly owing to the ability, energy and zeal in the discharge of their duties of the gentlemen who form or have formed the staff of professors in that establishment. When the present Principal entered on his career of usefulness in the McGill Normal School nearly twenty years ago, education was at a very low ebb in this Province. Very great difficulty was experienced in the obtaining of qualified teachers for even elementary schools; the persons who had the direction of the schools as Commissioners were, in many cases, but poorly fitted to discriminate between good teachers and bad; parents were deplorably apathetic on the subject of education, and the attendance of pupils in many districts was painfully irregular. Under such circumstances it was no easy task to set about a reform, and it was still harder to carry out the reforms which were necessary. It was required first to create an enthusiasm, a real love for education for its own sake among a certain number of the population, to induce young men and woman to give time, and industry, and money to the acquisition of learning and of the method by which instruction may be best imparted to others. In doing so, some, perhaps many of them, were abandoning the opportunity of making a speedy competency for themselves in branches of labor wherein work met with a juster and higher reward. For, inadequately as, in many instances, teachers are paid at present, they were much worse paid in the years of which we are speaking. The old system, now, we hope, almost abolished, of "boarding round," then generally prevailed, and this precarious and shifting mode of life was regarded as equivalent for a portion of the mere pittance which constituted the teacher's salary. Schoolhouses were ill-built, ill-ventilated, and seldom, in any respect, adapted for the purposes which they were intended to fill.

Not only, as before intimated, was the attendance of the scholars annoyingly and injuriously irregular, but the scholastic session varied in different districts according to the means, occupations or caprices of the trustees or those for whom they acted. In fact, the position of the teacher was a very uncomfortable one. He was the servant of the whole community, yet the whole community was unable or unwilling to pay him what would afford him a decent maintenance. Then, there was no proper classification of schools. Occasionally one small room served for academy, model and elementary school combined. In this, as in almost every part of the old sys-

tem, chance prevailed over method. A teacher "came along" and was "hired," if his looks pleased his patrons, If he proved unsatisfactory, the school was closed till another candidate presented himself, or, more frequently, herself. In most places the bad or indifferent teacher pleased as well as the superior, and. as may be imagined, those of the former class were vastly in the majority. The man or woman of good education found some more profitable and better appreciated use for it. If a district happened to be favored for a term with a well qualified teacher, there being no sufficient pecuniary inducement for his continuance, he soon resigned his charge and an inferior person took his place, and undid what he had been doing. This is no fancy picture. It was just the state of things which existed when the Normal School was established for the purpose of training teachers. It was then seen that the want of not the will but of the way had been the cause of the previous low state of education. At once a large number of young people of both sexes availed themselves of the advantages offered to them, and, at the close of the first year of work, there was a general call throughout the country for Normal School teachers. The pupils of that year were the first of a succession which has since supplied our schools with properly qualified teachers, and the reputation of the institution has ever since been increasing. Its importance, as a factor in the welfare and progress of the Province can hardly be over estimated. Our present educational status compares favorably with that of most civilized nations. Compared with that which existed twenty years ago, it is something to excite both our surprise and our gratitude. And we may say its usefulness is only just beginning to be felt.

In Lower Canada to-day we have a body of teachers of all grades, of which we ought to be proud, and which forms a solid basis for any forecast of the population which is hereafter to possess the land. For, as the teachers are, so will be the people. It is often complained that the teacher's profession is not regarded with that respect which is due to it, and, indeed, there is some reason for the complaint. Those who devote their lives to the forming of the minds of a growing people ought to hold a rank in the popular affection and esteem second to none. On them it depends how the places which we now fill will be filled hereafter; whether the land which we love will be a land of knaves, of sluggards, of *roués*, or a land of honest, industrious, noble men, doing their duty to God and to their fellows. The teacher, therefore, ought to have the sympathy and the support of the whole community. Especially ought parents, as far as lies in their power, to co-operate with him in his efforts to arouse the intellectual and moral energies of the young people committed to his care. They ought, instead of making difficulties, or adding to those already made, to exert themselves, wherever possible, to smooth them away. And in how many ways they can do so, if they only take the trouble!

We hope these remarks will be opportune in view of the approaching convention of teachers to be held in this city. These meetings have already been the means of doing much good by giving occasion for the discussion of matters connected with the teachers' work. But it is of the utmost importance that the public should take an interest in them. They are, in fact, as much interested in education as the teachers themselves, and the more they evince this interest the more they encourage and strengthen the teachers and add to the efficiency of education and the welfare of the taught.

Medical Faculty of McGill College.

LECTURE BY DR. GEORGE ROSS BEFORE THE FACULTY ON THE OPENING OF THE SESSION.

Dr. Ross delivered the following able and interesting lecture before the class in medicine on Monday morning, 2nd October:

Gentlemen,—

The introductory lecturer of Westminster Hospital last year very truthfully remarked that he was sure both speaker and students would much prefer a day's shooting to either giving or hearing an introductory lecture. This year the lot has unfortunately fallen upon me to perform that duty, and I cannot say that I have accepted the honor with feelings of unmixed gratitude, but must endeavor to accomplish the task as best I may. To those of you who are for the first time here as students of this University it is my pleasant privilege to offer, on the part of this Faculty, a hearty welcome. To those who having been, are returning here once more, we beg to say that we are glad to see you all again, and trust you come filled with the determination to continue the prosecution of your studies with renewed zeal and interest. We do not for a moment suppose that the long vacation since last session has been to you simply a continued rest or interlude from study. On the contrary, we would believe that much of it has been spent in furthering your enquiries, and extending pour knowledge of the subjects entered upon during the earlier portion of your curriculum. Some of you, indeed, we know have devoted much of this time to following the practical courses originated this year for the first time in our University in the form of a summer session. And here I would remark that the institution of this summer session for practical courses and special series of demonstrations, was felt by the Faculty as imperatively called for, and I feel that the appreciation accorded it, as shown by the unexpectedly large attendance, proves that its introduction has filled a want which was beginning to be felt. The number of subjects included in the study of medicine has been for some years back steadily increasing. The standard of proficiency demanded in any of them has also been continuously raised. Now, the effect of all this has naturally been to magnify to a large extent the amount of technical knowledge it is absolutely necessary to obtain in order to pass the required examinations. To accomplish this necessitates the employment of much time in the purely didactic teaching, with lectures and weekly examinations; and thus, against his will, the student finds himself to some extent obliged to give all his energies to the attendance on these and the mastering of their subject-matter to the exclusion of other more practical and therefore more interesting and ultimately instructive and truly educational subjects—those I mean in which he himself is the actual observer, receiving his knowledge directly from the application of his own senses, such as practical physiology, practical chemistry, practical clinical work, ophthalmology, &c. The time of the student now during the winter session is every moment so occupied by the acquirement of what he soon will need for the satisfaction of his examiners, that what does not immediately bear on this is only too apt to be relegated to a later season, and then perhaps come ultimately never at all. And it is well to remember that science begins with the careful observation of facts and ends with the systematic statement of what is observed, and this is the order and the way in which the student is most likely to be allured into studious habits and into a scientific frame of mind. Gentlemen, it does not require that I should expand into any panegyric upon the profession of medicine. Your presence here to-day of itself, is proof sufficient that you deem that noble profession one worthy to receive the devotion of your life. You are not indeed mistaken: the profession of medicine affords to its votaries—those at any rate who are true and faithful to her teachings—a sure reward for all the toil and trouble they may take to enquire into her mysteries. It is in its essence a combination of science and of art. The science, like all science, is illimitable—lays under contribution all true knowledge in whatsoever department it may have come to light. The art is continuously progressive, always improving and endeavoring to furnish the means of keeping pace with the scientific requirements. Here, then, surely is a field large enough to satisfy the most ambitious for the employment of his talents and the occupation of his time. And then, consider the subject matter. What is that thus engages the attention of so many master minds of every community who

are always found enrolled within our ranks? Nothing less than the study of man himself—man, in all his relations, social, moral and intellectual—as well as purely physical. It is the study of the development of that noblest work of God—who was actually made in the image of his Creator—of his development traced from the microscopic maternal ovum to the perfect creature in all his pride of physical perfection and towering mental superiority. It is the study of the beauty, uniformity, ingenuity and marvellous applicability to intelligent purpose of every separate portion of his wonderful frame. It is the minute examination by cunning mechanical contrivances into the very minutest recesses of every atom of every structure of which these parts are composed. The study of the chemical composition of all these varied tissues and fluids, the study of the changes taking place in this complex body as long as what we call life endures—the laws which govern changes and control function, and ultimate in causing death; and after death the study of the appearances caused by prematurely perverted vital laws or found as a result of the great and universal law of finality. This constitutes the study of medicine proper, based upon a due understanding of anatomy, physiology and chemistry. Did the world so exist that simply men and women were born, lived and died with constitutions perfect and minds and bodies obeying always the healthy laws of nature, the end being simply brought about by a gradual change in the structures and organs of the body—such as what we call old age—I say if this were the case, then would there never have arisen the necessity for medicine or physicians. But this is not so and never will be. If it were, the studies of physiology and anatomy would then be followed simply for the obtention of knowledge and truth, and not with the view, as now, of making such knowledge subserve an ulterior purpose towards our race. In the earliest records of the human race we find evidences that disease with all the pain and suffering it entails was not unknown. Besides, therefore, studying as mere *dilettanti*, the mysterious workings of the human body through simple thirst for knowing, it is a matter of the most vital importance to all mankind to have these mysteries understood and explained. The existence the of disease has led to the development of a system of therapeutics, or means of cure, medicinal or otherwise—and to accomplish this this, we further require our armamentum or Materia Medica, which furnishes us with the necessary means for the accomplishment of that end. You should never forget that the chief end and aim of medicine is to cure and to relieve. Lamartine has well said, "La medicine guérit quelquefois, soulage souvent, console toujours.' Depend upon it, the public will never tolerate us or pay us fees merely to stand by the bedside of those they love as mere scientific observers, or a sort of Greek chorus, for although there be times when the highest wisdom is to hold our hand lest we rudely quench the struggling spark of life, it far more often happens that we can do much either to cure or relieve pain. But to do so we must learn all we can, and must ever be learning. Again, "Prevention is better than cure." That trite and well-worn adage is undoubtedly to be the coming watchword of the medical profession. You will at once perceive that I refer to sanitary science. It is not new. The Code given by Moses contains admirable sanitary directions. But sanitation, *i e.*, the endeavor to preserve health, so that we shall not have disease to cure—long fell into disregard. Of late years, however, we all know what energy has been applied towards this most useful of all the useful branches of medicine It is necessarily to medicine that the people must look to be taught the means for carrying out this desirable object. Medical men know more of diseases than other people do; they not only know much about the remedies that have to be employed, but they of necessity know much about the ways in which they may be prevented. Are they not then bound to use their knowledge for the good of mankind? Are they not bound to make that knowledge as perfect as they can? Sir Wm. Jenner, in a recent utterance, said: "No one acquainted with the present state of the Science and Art of Medicine will for a moment question that, to prevent disease, is its first and most important aim." And likewise Sir Wm. Gull; "It is enough for us that diseases prevail to stimulate our best efforts for their prevention, without our asking a question beyond." Besides, think for a moment what has already been accomplished in this way. Look at the discovery of vaccination, the preventive of small-pox, the most terrible and fatal plague that ever appeared on the face of the earth. Ignorance and prejudice still exist against the reception of this inestimable boon—notably in this unhappy city of our own. But light must surely come some day to the darkened minds of the dupes of the Coderre school. A year ago the German Parliament passed a law making vaccination and re vaccination compulsory throughout the Empire. Let us hope that this will give us soon the unexampled spectacle of an entire country freed from this horrid pestilence by the wisdom and foresight of its rulers, guided by the teachings of sanitary science. The day will shortly come when every one of you whom I now address will be in a position to help in procuring the passage of a similiar law in this country, and it will be your duty to do so, a duty you owe to the memory of Jenner. Again, think what the science of Preventive Medicine has done for scurvy, that decimator of the armies and navies of the world. It is virtually gone. Typhus fever has also almost disappeared, and we have a right to hope the day is not far distant when enteric fever will share the same fate. This Faculty do not include this branch amongst those compulsory to the student, and in doing this we have the support of the practice followed by nearly all the British Universities. It is well that this fact should be stated, because a recent attempt has been made to discredit our curriculum on that account. The ultimate end of your study is to obtain a well-grounded knowledge of the three great divisions of Medical Science and Art—Medecine Surgery and Midwifery. They constitute the triple structure upon which you are to build, and it is to be erected on a triple foundation. Anatomy, Physiology and Chemistry are the three corner stones on which the erection is to be based Materia Medica, Medical Jurisprudence and Hygiene are in effect based on and compounded of other sciences. Could you but have presented to you at once all the details of the work upon which you are about to engage it would indeed appear huge, colossal, impossible of attainment. Fortunately, you cannot thus grasp at once the entire range of subjects which you will have to traverse. But separate portions being successively laid before you, you will be able to seize them one by one and finally end by possessing more than at first your most sanguine anticipations would have induced you to anticipate. Timber to timber, stone to stone, and brick to brick, must be gradually with toil and patience put together, the entire structure of your knowledge. Do not, then, allow yourselves to become faint-hearted at the load of labor that presents itself to view, but only let its contemplation make you more earnest and determined to make good use of every moment at your disposal. I do believe that you need but little urging to work. But there are different ways of doing this work as every other. Done in one way the energies will be found to have been frittered and wasted, and the result to be comparatively small, whilst carried on after a different method a much greater result will surely be archieved by a similar expenditure of force. Work applied to scientific pursuits differs much from that in letters pure. It has been well said that "learning and knowledge in Science, as in Life, are distinct: whereas, in the world of letters, learning and knowledge are one." In medicine you will quickly find that your books and your teachers are guides only; you cannot depend on them exclusively. New problems in disease, caused by a never-ceasing change in the circumstances acting on the organism will speedily necessitate your lodging for yourselves. The best teaching you can have is that which leads you to educate your reasoning powers instead of stultifying them by artificial tricks of memory, or other similar devices, which leave in the mind a verbal existence only instead of establishing therein some definite image. A recent periodical thus clearly puts this point: "A good or bad memory is a good or bad understanding. The faculty of recollection, or the power of recalling a piece of knowledge when it happens to be wanted, is chiefly a matter of *method.* It is useless throwing detached facts into the mind like loose pebbles into the sea. That is the way to lose them. Each point must be studied in detail, and when this is done, a host of subsidiary facts and conditions will be discovered connecting it to other facts of memory with which it should be habitually associated. These secondary qualities and properties form the strings of thought by which nature has ordained that the lessons she teaches shall be recollected. Artificial memories are miserable substitutes for the natural connecting links of knowledge thus provided.

If instead of wasting precious time and equally precious brain-power drivings things into his memory, the student will devote an equal amount of energy to the full and exact comprehension of his work—for example, the facts and circumstances that determine tha number, shape, and directions of the ridges on

a bone, or a foramina by which it is perforated, the course and relations of an artery, the number and distribution of the branches it gives off—he will not only have the subjects fixed more permanently, but he will acquire so much collateral information in this natural process of study that presently he will find himself making unexpected progress In short, it is good policy to leave the contingency of remembering alone and to concentrate the whole attention on the present duty of learning, with the warning consciousness that nothing is really *learnt* which is not thoroughly understood." Medicine is advancing daily, and in such advance "the ultimate court of appeal is observation and experiment, and not authority," and the sooner you educate yourselves to observe clearly and carefully, and to draw correct inferences from your observations, the more self-reliant you will become, the less liable to be turned hither than thither by every new fangled idea in medical doctrines, and the less servile a follower of some dominant theory or captivating teacher. "L'homme," says Paschal, "est visiblement fait pour penser; c'est toute sa dignité, et tout son mérite, et tout son devoir est de penser comme il faut." Thus the more the didactic lecture system is supplanted by the constant concurrent employment of practical demonstrations and investigations in which the student himself is the active worker, the more true to its real purpose will the teaching be. To enlarge this sphere of education in the tendency of all progressive establishments for the instruction of students of medicine. In this College a large field is opened out to you by the ample opportunities afforded in a carefully-conducted dissecting-room—a laboratory for practical chemistry—courses of practical microscopy, and a lange hospital, where clinical work is much insisted upon. And here I would like to express a hope that before long our students may also be found in possession of an efficient physiological laboratory, an object which the present requirements of a complete medical education absolutely demand. Indeed it is not two much to expect that the Introductory or next session shall contain an allusion to this addition as a then accomplished fact. Your aim then should be not to learn servilely for the mere purpose of knowing so much, but you learn so that you may be by so much the better educated. Even so, the absolute handiwork of your profession must never be neglected The habit must be acquired of being able to use your hands and to use them well. Without this, when brought face to face with actual disease or accident, all your hnowledge is in vain. A surgeon once pithily said of one os his dressers, "He has learnt everything; he can do nothing." He alone is learned who reduces his learning to practice, and practical skill without learning degrades our profession to the level of the days of batber surgery and mediæval medicine I need hardly say that it is only in his hospitals that a student can acquire this manual dexterity. Frequence and regularity in attendance at the hospitals cannot be too much insisted upon. Care, attention, and application to the work going on there cannot be too much commended. It is often quite possible to forecast the probable future success as practitioners of medecine of the individual members of any class by an observation of their daily conduct in these respects. Trousseau calls the clinique the cope-stone of medical study. I do not consider that I detract in any way from the relative importance of any of the other branches, if I permit myself to add a few more words to you on the subject of clinical study, in which I am myself more immediately engaged. Frequent practice in hospitals wards, we have said, is absolutely essential for obtaining familiarity with surgical manipulations. So also similar, though different practice is equally essential for acquiring the ability to institute a practical diagnosis. The first requirement for an accurate diagnosis is to learn to recognize morbid signs. This is what you have to learn to be able to do, and it is practice alone, the constant exercise of one's own individual faculties, his sense of sight and hearing and touch and smell, which will ever make him proficient in the art. To be able to recognise morbid signs you must accustom yourselves to be about and amongst sick people, constantly examining, enquiring and observing. Book learning alone can never suffice to enable you practically to interrogate patients, to know and appreciate healthy and morbid physical signs and sounds—to handle and intelligently use our aids in physical examinations, the stethoscope—to estimate peculiarities, mental and physical, of various individuals—to ascertain the true action and therapeutical value of various drugs—to be familiar with the pathological appearances presented by the human frame diseased. All these and a thousand other things can be acquired by experience alone, and to enable a student to obtain this experience he must frequent his hospital and must study medicine clinically. "When you are young," said the great Trousseau, "Let your fields be the hospitals and the clinics, and when your knowledge has increased let the hospitals and clinics still be your fields of industry. By pursuing this plan you will attain expertness in your art, knowing what science teaches and having the power within yourselves of originating" In former days didactic teaching had not been systematized, experimental investigations, morbid anatomy and reasoning therefrom were hardly dreamt of, but observation alone was trusted to obtain a stock of medical lore. To illustrate which, and to contrast with the education of the present day, I may quote for you the following passage from a a book more than 200 years old, entitled "The Accomplisht Physician, the honest Apothecary and the Skilful Chirurgeon." It says:—"First, it's most necessarily requisite our young student should be perfectly instructed in the Latin and Greek tongues, being the universal keys to unlock all those arts and sciences, and no less a grace to the future physician. Secondly, being thus qualified for a student, he ought to apply himself close to the study of philosophy, for which Oxford and Cambridge may justly challenge a pre eminence above other Universities But because, according to the first master, Hippocrates, art is long and life is short, he ought to ingage his diligence, to absolve his philosophical course in two years at least, and in the interim, for his recreations and divertisements, enter himself scholar to the gardner of the physick garden, to be acquainted with the fætures of plants, but particularly with those that are familiarly prescribed by practitioners, to prevent being outwitted by the herb-women in the markets, and to enable him to give a better answer than it is storied once a physician did who having prescribed maiden hair in his bill, the apothecary asked him which sort he meant. T'other replied, some of the locks of a virgin." Thirdly. Supposing our student to have made sufficient progress in philosophy, he may now pass to Leyden, and enter himself into a Collegium Anatomicum. A proficiency in that part fits him for a Collegium Medigium Institutionum, and afterwards a Collegium Practicum, and then it's requisite he should embrace the opportunity of visiting the sick in the hospital twice a week with the Physic Professor, where he shall hear him examine those patients with all the exactness imaginable, and point at every disease and its symptoms as it were with his finger, and afterwards propose several cases upon those distempers, demanding from every young student his opinion and his grounds and reasons for it, withal requiring of him what course of physic ought to be prescribed." He then advises the student to live a year with an apothecary to learn compounding, to sojourn another year with a chirurgeon, so as to see him dress his patient's wounds, and thus to acquire that art also. He must then visit Paris, Boulogne, Montpelier and Rome, and see the practice of the great physicians there; by which, he remarks, one will be raised far above those vulgar ones who have never felt the cold beyond the chimneys of their homes. Of this travelled and accomplished physician it is finally observed: "The vulgar will then be able to discern the difference between him and the ordinary churchyard physicians, who by their sordid deports and dangerous practices make it their business to ease the blind people of the weight in their pockets, and plunge them into worse deseases" Now, gentlemen, I think I have spoken enough about work, let me say a word about its lawful opposite —rest. You, above all others, should remember that brain-work as well as all kinds of physical work or manual labor requires for its accomplishment destruction of matter. The one, therefore, no more than the other, can be *continuous*—the attempt to make it so, or nearly so, must surely and inevitably lead to failure. Do not then fall into this error—it is one only too often made. Regulate your hours of study, so that they shall not interfere with a rational amount of suitable exercise and needed repose. Regularity and steadiness at your work will always enable you to do this. The arrangements of the curriculum may appear to you in many respects unreasonable. They are not perfect. But bear in mind that the parts which seem to you to be faulty have objects which you may not now perceive. Patiently endeavor to make the most of what appear to you its useless provisions. Your patience will often be tried by having to listen to what seems out of place accounts of departments of knowledge as yet quite unfamiliar. Do not "cut" lectures because you do not see their value. Endeavor to attend them regularly and to carry away as much as you

can, and you will find your subsequent work in other subjects as well as in that department rendered easier. There are two kinds of students who are apt to suffer from overwork—one is the extra diligent student, working hard and striving, it may be, for a prize. To him we would say—be careful, the last straw breaks the camel's back. There is a limit beyond which you cannot safely go. The other is he who, having let slip precious hours as the session has glided swiftly by, wakes up at last to the alarming consciousness that he must prepare to meet his examiners. To any who feel conscious of an innate tendency to slothfulness or procrastination we would say—be diligent from the outset, and then at the end there will exist no necessity for that excess of work against which we now would warn you. Work therefore, but also rest, and be sure your efforts will be crowned with success. Manner is probably more looked to in the practising physician than in one of any other profession, and naturally so, because being frequently from the nature of his calling intimately and confidentially associated with persons themselves of refined and cultivated manners, anything less on the part of a medical attendant is necessarily criticised, and is obstructive to his success. Aim, therefore, to cultivate during your pupilage kind, genial and considerate conduct towards each other, and towards all, which will surely mould such an habitual demeanour as it should be your desire to possess. Believe me, the age for Abernethian asperities is not the present—nor suppose that it is an indication of a virtuous and independent mind to speak curtly, gruffly or unsympathizingly to the sick On the contrary, a kind word is always in place, and is sure to carry its own reward. I would conclude, gentlemen, by once more bidding you all a cordial welcome, expressing a hope that this session will witness a continuance of the same mutual cordiality and confidence which has always hitherto characterized the relations of the teachers and classes of McGill University.—*Montreal Gazette.*

University Intelligence

The following is the award of scholarships and exhibitions at the examinations held in cGill College, September, 1876 :—

SCHOLARSHIPS tenable for two years)—Science.—Graham, J. H. * ; Donald, J. T. * Classics and Modern Languages—Ross, J. (1)

EXHIBITIONS (tenable for one year)—Second year.—McLure, W. * ; Eadie, R *

First year.—Hunton, S. W. * [Ottawa Collegiate Institute] ; McKenzie, W. A. * [Upper Canada College] ; Bull, H. J. * [High School, Montreal] ; Lafleur, P. T. (2) [High School, Montreal]; Yarnold, F. M. (3) [Port Perry High School] ; Darey, J. H. (4 [High School, Montreal]

* Scholarships or exhibitions given by W. C. McDonald, Esq.
(1) Given by Charles Alexander, Esq.
(2) Given by T. M. Taylor, Esq.
(3) Endowed by Mrs. Jane Redpath.
(4) Given by the Governors.

Ladies Educational Association.

Yesterday afternoon, 28th Sept , the opening lecture of the season, in connection with the Ladies' Educational Association, was delivered by the Rev. J. F. Stevenson, in presence of a large audience. It was a thoughtful, scholarly and interesting address, upon Women and education. He spoke of the advantages of Education, and showed that women had a right to be educated. Naturally, our humanity was narrow in its views, and especially was this the case with women. There was a necessity for us all to be more broad in our ideas and conceptions of Truth. Too many of us, in our searches after Truth, were like the chicken, which, when it had obtained a grain of corn, ran about flapping its wings as if it had got everything. It was the tendency in life. We obtained possession of a grain of Truth, and then were apt to bore people, and become a nuisance to them. It was not because this fragment of Truth was not true, it might also be important, but the trouble was, we did not understand its proportions, and were unconscious of the vast well of knowledge upon which we had to draw. Education was a cure for fanaticism, and narrowness. We had to study faithfully and thoroughly. He spoke of one Truth leading to another, illustrating this point by a reference to the study of Botany, which he was glad to see was included in the course. By its study one not only became acquainted with the plant itself, but with many other things in connection with nature's schemes. Truths were to be regarded not only as equally true, but of unequalled order and proportion, Education not only influenced the intellect, but had its effect upon the whole human being. It gave patience instead of rashness, as in the case of a high strung boy, when he had one fact, he was ready to post off to the ends of the earth in search of another. But when he acquired the power of concentration he was master of himself, and when he became able to master himself, as the Scripture said, he was greater than he that taketh a city Self-mastery, self-governance, self-guidance were the final purposes of all education. Women's education had to be put upon a broad basis. He would point out one of the special advantages of the education of women, and in doing so would give expression to one broad thought that one of the advantages of educating woman was that she might be able to take her place as a completely and entirely developed human being. Woman had the same right to be educated as man What intrinsic reason was there why the power in woman's heart and intellect should not be drawn out ? Why take a thing of beauty, a woman's mind, and say it should not have all possible culture ? There was no beauty in feminine ignorance. Education was a source of refined, delicate, exquisite pleasure, for which woman had a special adaptability. Take the joy which accompanied the faithful study of language. The student would hunt down a word to its source just as keenly and appetisingly as the huntsman hunted his game, but with a keener feeling, the result being a fuller knowledge of the force of all words. Then the obtainment of a fact in the science of Geology, what an endless source of amusement was it not ? There was an infinity of fact in Truth. As Dr Dawson would say, a mere fragment of rock, would give to a thoughtful person days, weeks and months of study. In its consideration there was first the rock and then the entire physical universe. Who would say then that the obtainment of knowledge was not better than tea, coffee and scandal ? Who would say it was not superior to an acquaintance with the fashions and with the accuracies of feminine dress ? Was a man who gave all his time to fastening his neck-tie happier than he who gave himself to study ? The daily and hourly study of literature, science and art opened up exquisite pleasures and placed the student upon a pinnacle of delight as compared with ordinary enjoyments. He proceeded to enlarge upon the necessity there was for women being cultured as being the framers of social life. Man was ruled by the character of his home. Was it not then of the utmost importance that his moments of leisure should be spent in an ennobling and purifying atmosphere ? He believed it would be found that in the majority of instances men whose life had been at a high pitch of culture had attained it by the aid of thoughtful and cultured home atmosphere Sometimes in his career as a minister, he had thought, and it was a sad thought, that many men had not attained what they might have done if they had not been held back by those at home who drew them down. Why should this be ? Why should not women be the noblest and purest, and most elevated of their husband's or brother's companions ? Women must be educated, because a great part of the work of education was entrusted to them. A large proportion of the early and elementary education was given by women who had the governance of children in their first years. He instanced the power of women over the most unruly boys, as for instance in a Sunday School, where the males could do nothing with them. It was then essential that those who were to be the educators of those who should come after us should be themselves educated. Why should not there be obtained in the earliest years of childhood, that which was often left to later years to acquire ? It was Leibnitz, he believed, who had opened up this subject in his " Regions of Unconscious Thought." Sir William Hamilton too, and Dr. William Carpenter in his " Unconscious Cerebration " had recognized that much thought was going on without our being thoroughly aware of it. The latent processes, the root thoughts whence emanated all the rest, came out of the thoughts of which we were not conscious. This unconscious thought, it might be, was laid for us in the early months of infancy. He had often thought that the greater part of education might take place before one was three or four years old. If so woman, of all others, was a most

powerful educator, and must necessarily have a sound, thorough and many sided education. He concluded by reviewing the different branches of the season's course, each of which he commended in appropriate terms.

A vote of thanks was passed to the lecturer, after which the meeting was closed.

The lectures of the Association commence on Monday.

OFFICIAL NOTICES.



Department of Public Instruction.

Quebec, 27th September, 1876.

ERECTION AND LIMITS OF SCHOOL MUNICIPALITIES

His Excellency the Lieutenant-Governor has been pleased, by an order in council, dated the 13th of July last, (1876), to make the following changes, namely :

County of Hochelaga, Village of Outremont.—To detach from the school municipality of Cote des Neiges, in the county of Hochelaga, the territory known as the Village of Outremont, and to erect is into a distinct school municipality under the said name, and such as it is already erected for municipal purposes.

County of Nicolet, Sainte Sophie de Levrard.—To erect into a school municipality the new parish of Sainte Sophie de Levrard, in the county of Nicolet, with the same limits as those assigned to it by the proclamation of the twenty third day of April one thousand eight hundred and seventy five ;

And by another order in council dated the 19th day of September instant, 1876.

County of Temiscouata, Notre Dame des Sept Douleurs.—To erect into a distinct school municipality that part of l'Ile Verte, coun y of Témiscouata, heretofore forming part of the parish of Saint Jean Baptiste de l'Ile Verte, and now erected into a civil canonical parish under the name of "Notre Dame des Sept Douleurs."

County of Montmagny, Montmagny (village).—To erect into a school municipality the village of Montmagny, in the county of Montmagny, by given to it the same limits as those already assigned to it for municipal purposes.

LIMITS.

To divide the school municipality of Saint Clement de Beauharnois into two, one to be called the municipality of the town of Beauharnois, with the limits which are assigned to it by the Quebec Statute, 38 Vict. chap. 77, and the other the municipality of Saint Clement, which shall include the residue of the former municipality of Saint Clement de Beauharnois.

APPOINTMENTS OF COMMISSIONERS AND TRUSTEES.

Montreal, Catholic.—Alderic Ouimet, esquire, M. P., continued in office.

His Excellency the Lieutenant-Governor has been pleased, by order in council, dated the 17th day of August, 1876, to make the following appointments of school commissioners and trustees, to wit :

COMMISSIONERS.

County of Rimouski, Notre Dame du Sacré Cœur.—The Reverend Chs. Guay, Messrs. Paschal Parent, Pierre Parent, Joseph Pineau, junior, and Frs. Xavier Nadeau.

County of Two Mountains, Saint Placide.—Messrs. Ephrem Baby and Benoit Lalonde, *vice* Messrs. Zéphirin Raymond and Pierre Vaillancourt, going out of office.

And by another order in council dated the 19th of September, 1876.

County of Richmond, Danville.—Messrs. George Short Carter, Augustus Edward Lee, William Honeyman, Joseph Lord Goodhue and Michael Lynch.

And by another order in council of the same date.

County of Ottawa, Wright.—Mr. Patrick Grace, continued in office, and Mr. John Connors, *vice* Mr. Moyse Petrin, whose term of office has expired.

County of Beauharnois, Saint Clément.—Messrs. Ls. Ant. Bertrand, Charles Boyer, Toussaint Lemieux, Octave Daoust and Michel Leduc, junior, in as much as the municipality was not erected in time to allow of an the election.

County of Bonaventure, Paspebiac.—Messrs. Jean Albert, junior, and Joseph Roussy, *vice* Messrs. Samuel Loisel and Eloi Joseph, gone out of office.

And by another order in council dated the 20th of September, 1876.

County of Beauce, Jersey.—Messrs. William Martha, Joseph Stafford, John McIntyre, John Hagnard and Joseph Poulin. New municipality.

County of Charlevoix, Rivière Portneuf.—Messrs. Cryseuil Desbiens, David Tremblay, Urbain Trembay. Germain Larouche and Epiphane Tremblay. New municipality.

County of Two Mountains, Saint Joseph.—Mr. Frederic Derome, *vice* Mr. Pierre Lalonde, as no election took place.

County of Dorchester, Saint Malachie.—Mr. Praxède Lacroix, *vice* Mr. Théodore Dutil. Election irregular.

County of Gaspé, Magdelen Islands.—Rev. Chs. N. Boudreau and Mr. Alexandre Cormier, *vice* Messrs. Léon Poirier and Simon Richard going out of office. No election having taken place.

County of Gaspé, Anse à Valeau.—The Honorable Thos. Savage, continued in office. No election having taken place.

County of Hochelaga, village of Saint Jean Baptiste.—Mr. Ferdinand Corbeil, continued in office, and Mr. Jérémie Poirier, *vice* Mr. F. X. A. Coutu. No election having taken place.

County of Jacques Cartier, Côte des Neiges.—Mr. Zéraphin Boyer, junior, *vice* Mr. Félix Prud'homme, the latter residing no longer in the municipality.

County of L'Assomption, L'Assomption.—Mr. Noel Rivest, *vice* Mr. Narcisse Etu, deceased and not replaced by election within the time required.

County of Pontiac, Bryson.—Mr. Jules Saint Jean, *vice* Mr. Andrew Neville. No election having taken place.

County of Quebec, Stoneham.—Mr. Patrick Cavanagh, *vice* Mr. Thomas Martin, resigned, and Mr. Michael Dunn, continued in office. No election having taken place.

And by another Order in council of the same date.

County of Lotbinière, Saint-Sylvestre.—Messrs. Thomas McCaffrey and Antoine Lemieux, continued in office. The election not having taken place within the time fixed by law.

County of Laprairie, Saint-Constant.—Hubert Boyer, esquire, *vice* Mr. Hormisdas Barbeau, who by reason of his advanced age could not accept the office.

SCHOOL TRUSTEES.

His Excellency the Lieutenant Governor has been pleased by order in council, dated the 19th day of September instant, to make the following appointments, namely :

County of Bonaventure, Hope.—Mr. Pierre Lecourtois, *vice* Michel Parisé, gone out of office.

County of Bonaventure, Cox.—Mr. Maxime Joseph, *vice* Mr. Alexis Dugay, gone out of office.

His Excellency the Lieutenant Governor has been pleased, by another order in council, dated the 5th of June, 1876, to associate Peter S Murphy, esquire, of Montreal, to the Council of Public Instruction, *vice* L L. L. Desaulniers, esquire, resigned.

BOARDS OF EXAMINERS.

His Excellency the Lieutenant Governor has likewise been pleased, by order in council, dated the 20th of May, 1876, to appoint Damase Rossignol, esquire, M. D., of Kamouraska, member of the board empowered to grant teachers' certificates for the district of Kamouraska.

And by another order in council, on the 17th of August, 1876. To appoint as members of the board of examiners for Rimouski.—The Very Reverend Edm. Langevin, Vicar General, Messrs. Arthur Prisque Letendre and François Magloire Derome, *vice* the Reverend P. Winter, resigned, the Rev. Mr Guilmette, absent, and Mr. J. M. Hudon, deceased.

POETRY.

The Bald-Headed Tyrant.

BY MARY E. VANDYKE.

Oh ! the quietest home on earth had I,
No thought of trouble, no hint of care ;
Like a dream of pleasure the days flew by,
And Peace had folded her pinions there.
But one day there joined in our household band
A bald-headed tyrant from No man's-land.

Oh, the despot came in the dead of night,
And no one ventured to ask him why:
Like slaves we trembled before his might,
Our hearts stood still when we heard him cry;
For never a soul could his power withstand,
That bald-headed tyrant from No-man's-land.

He ordered us here and he sent us there—
Though never a word could his small lips speak—
With his toothless gums and his vacant stare,
And his helpless limbs so frail and weak,
Till I cried, in a voice of stern command,
"Go up, thou bald-head from No-man's-land!"

But his abject slaves they turned on me ;
Like the bears in Scripture they'd rend me there,
The while they worshipped with bended knee
This ruthless wretch with the missing hair;
For he rules them all with relentless hand,
This bald headed tyrant from No man's-land.

Then I searched for help in every clime,
For peace had fled from my dwelling now,
Till I finally thought of old Father Time,
And low before him I made my bow.
"Wilt thou deliver me out of his hand,
This bald-headed tyrant from No-man's-land ?"

Old Time he looked with a puzzled stare,
And a smile came over his features grim,
"I'll take the tyrant under my care ;
Watch what my hour-glass does to him.
The veriest humbug that ever was planned
Is this same bald head from No man's-land."

Old Time is doing his work full well—
Much less of might does the tyrant wield ;
But, oh ! with sorrow my heart will swell
And sad tears fall as I see him yield.
Could I stay the touch of that shrivelled hand,
I would keep the bald-head from-No-man's-land.

For the loss of Peace I have ceased to care ;
Like other vassals I've learned, forsooth,
To love the wretch who forgot his hair
And hurried along without a tooth.
And he rules me, too, with his tiny hand,
The bald-headed tyrant from No-man's-land.
—(*Harper's Magazine for September.*)

THE JOURNAL OF EDUCATION.

QUEBEC, OCTOBER, 1876.

We have received a copy of the Report of a Comittee appointed 9 November 1875, for the purpose of gaining information in regard to the Schools of Art established in the Cities of Boston and New-York. This Report is made to the members of the Council of Arts and Manufactures of the Province of Quebec, and we think it right to give the following extracts therefrom showing the great utility and benefit to be derived from "Schools of Arts" several of which have been established in various parts of this Province.

Importance of the Study of Design.

An error generally fatal to the workman of whatever kind is to believe that he must, or, at least, that he may without inconvenience, remain in his ignorance ; that his handiwork, a certain routine, a very limited amount of knowledge purely practical, effectively fill the place of conceptions of intelligence and protect him sufficiently against all competition. Although we put ourselves on guard against mere theories, we believe that there is no more salient danger than this complacent security of certain working classes, which, for some years past, has been at the bottom of all the strikes and of those intervals of idleness so disastrous for workmen's associations or corporations, and for commerce and industry at the same time. Intelligent labour is rarely without employment ; crises affect it little. Stagnation is never total or universal. In a moment of depression, the little commerce which is transacted is that of merchandise produced according to the best laws of taste and wholesome economy, the price of raw material being otherwise equal. So also, a master seldom sends away his most skilful employees ; the evil weighs only upon the less experienced, those who can be easily procured. Moreover, technical education to the advantage of the artisan is the prize of liberty, and even a necessity of the organisation of modern society.

In England in the time of Elizabeth, *the Statute of Apprenticeship* decreed that "No person should for the "future exercice any trade, craft or mystery at that time "exercised in England, unless he had previously served "to it an apprenticeship of seven years, as least; and," adds Adam Smith, "what had before been the by-law "of many particular corporations, became, in England, "the general and public law of all trades carried on in "*market towns.*"

In France, the duration of apprenticeship varied according to towns. At Paris, the number of years of apprenticeship was generally five ; but no person could become foreman or employer, in the greater portion of the industries, without having served five years more as journeyman, with the title of Companion. The author above-cited, Adam Smith, in his work, "*Wealth of Nations*," observes that "The policy of Europe occasions "a very important inequality in the whole of the advan-"tages and disadvantages of the different employments "of labour and stock, by restraining the competition in "some employments to a smaller number than might "otherwise be disposed to enter into them. The exclu-"sive privileges of corporations are the principal means "it makes use of for this purpose."

As the question of artistic ability greatly interests industry, and it is of supreme importance not to be deceived as to the means to be taken to impress upon it a seal of superiority, it is not, perhaps, out of place to recall in what terms the same economist combats the system formerly pursued in Europe; for if we are convinced that this system is vicious, it is necessary, nevertheless, to find a substitute, and the solution of the question which the Council of Arts has proposed to this Committee becomes mory easy ; there will be no longer any reason for hesitating as to the urgency of the means to be taken for forming skilful artisans :—

"The institution of long apprenticeships can give no "security that insufficient workmanship shall not fre

" quently be exposed to public sale. When this is done, " it is generally the effect of fraud, and not of inability; " and the longest apprenticeship can give no security " against fraud. Quite different regulations are necessary " to prevent this abuse. The sterling mark upon plate, " and the stamps upon linen and wollen cloth, give the " purchaser much greater security than any statute of " apprenticeship. He generally looks at these, but never " thinks it worth while to enquire whether the workman " had served a seven years apprenticeship. The institu- " tion of long apprenticeships has no tendency to form " young people to industry. A journeyman who works " by the piece is likely to be industrious, because he " derives a benefit from every exertion of his industry. " An apprentice is likely to be idle, and almost always is " so, because he has no immediate interest to be other- " wise. In the inferior employments, the sweets of " labour consist altogether in the recompense of labour. " * * * The boys who are put out apprentices from " public charities are generally bound for more than the " usual number of years, and they generally turn out " very idle and worthless.

Whatever may have been the influence of modern economists on the relations between master and apprentice, it is no less true that these conditions are considerably changed, as well in Europe as elsewhere. The workingman has seen his favourite dream realized, the liberty of work, in this sense, at least, that the law is no longer at hand to protect the monopoly of working corporations and embarrass individual effort. But instead of the workshop, which the apprentice no longer follows but to acquire dexterity of hand, something else is necessary to be substituted for the lessons of long apprenticeship. Accordingly public schools and gratuitous courses of study, have been instituted. The secrets of the arts and industry have, in these courses, been revealed to those who frequented them. At first the progress of the new system has been, perhaps, but little felt; education, in fact, is a seed of which the germination is slow and of which the fruit does not ripen in a year. It required generations to convince Europe that is was necessary to give the workingman an education corresponding to the kind of industry which he desired to follow, and to instruct him with reference to this industry especially. According to the acknowledgement of publicists who have given their attention to this important question the various governments of Europe recognise the fact that national supremacy must in future depend more and more on industrial supremacy. " Immediately after the war with France," " says Professor Langl, " the authorities of the various " industrial towns of Prussia were called upon by a cir- " cular issued by the Ministry of Commerce and Indus- " try, to follow the example of France in the organization " of Drawing and Industrial Schools; and their attention " was directed to the industrial importance of these " schools and to the fact that they form the true basis of " the wealth of France."

England itself, in the year 1851, at the time of the universal exhibition at London, apprehended the importance of the movement inaugurated in France. That Exhibition showed that England was behind her rivals with respect to products susceptible of artistic treatment, and whose commercial value is, by this means, considerably increased. Profiting by defeat, England cast aside her former policy as to instruction, which was simply a *laisser-faire* policy, and set herself vigorously to work, in the hope that artistic instruction applied to industry might be reduced to rational methods, might be treated according to recognized principles, and determined no longer to abandon this kind of instruction. " We cannot make artists, nor even good designers by dozens," said recently an English writer. " But we can " encourage the teaching which will bring to light " whatever ability there is hidden in this country and " make all necessary preparations for that purpose. We " can exercise to a certain degree, by elementary design, " the eye and the hand of youth in the primary schools " of our cities, sufficiently, at least, to allow them to " distinguish, in a certain measure, forms and colours, " what is graceful and well-proportioned, what is harmo- " nious and conformable to the laws of taste, from what " is not so. Even from a utilitarian point of view, this " instruction is important to the workingman, because it " enables him to understand and communicate ideas and " views as to matters connected with his trade, by means " of the pencil, and because it forms his eye and hand " for the most delicate operations of his trade, and " enables him, when the necessity occurs, to make " diagrams and drawings of machines. It is not " necessary to dwell on the importance of forming " skilful designers and of assuring in this way a " character of beauty as well as force and honesty in " workmanship,—in a country, which to succeed in its " trade counts so much on the industries of the weaver, " the dyer, the printing of textile goods, pottery, porce- " lain, metal works of all kinds, &c."

Germany, whose industrial products are some times so exquisite and find so advantageous a place in foreign markets, has Schools of Art in her principal cities, and sometimes in cities of secondary importance with regard to population. Austria, since her defeat at Sadowa, has entered resolutely on the way that leads to the improvement of her industry by means of industrial education. The Vienna Exposition had for its chief object, it appears, to stimulate the Austrians by putting before their eyes what industrial education had effected in foreign countries. "But," writes Mr. S. R. Koehler, the movement in " favor of art-industrial education is by no means limited " to England, France, Germany, and Austria; it pervades " all Europe,—the small states as well as the large. Even " Russia forms no exception; with the last eleven years " she has established various art-schools modelled after " the English, and it is said that they have 'greatly sti- " mulated and improved the national taste.' There is, " indeed, but one opinion throughout Europe as to the " importance of art-industrial education, and as to the " wisdom of making it universal. In this connection it is " well to note that the methods adopted by England for " promoting this education are generally imitated. Even " France, so long the leader of the world in matters of " art, has of late been taking lessons of her neighbor " across the Channel."

With respect to the efforts made by Russia to introduce industrial education, Professor T. C. Archer, attached to the Museum of Sciences and Arts of Edinburgh, having been present at the Polytechnic Exposition of Moscow in 1872, wrote: "Group No. 16 may be repre- " sented as a manufactory of ornamental plate in silver " and silver gilt. Besides a splendid display in what may " be termed the show-room, there are two very roomy " and well fitted up workshops, in which the artisans " may be seen working in the richly wrought and " characteristic Slavonic designs, which are so notable in " the plate produced in Moscow by the great firms of " gold and silver smiths. The schools of art established " about eight years ago, on the model of those at South " Kensington, have, under the direction of Mr. Bowtoffski " greatly stimulated and improved the national taste, " and have especially led it to accept the pure Slavonic " models, of which the imperial treasury in the Kremlin " contains such an abundance of the best examples"

It was after having investigated the causes of the supe-

riority of the countries of Europe in the matter of industry that the United States arrived at the conclusion that the only way to sustain foreign competition was to spread artistic taste among the masses, as well consumers as producers. A citizen of of Boston, who takes a lively interest in the Schools of Art in his locality, Mr. Clark, pointed out to us how opposed it was to the interests of the industrial population of the United States to export raw cotton to England tor the purpose of importing it again to the United States under the various forms that it receives in the English workshops. The American consumer, in fact, pays first, to the profit of a foreign nation, the expense of exporting the raw material to England, then the cost of fabrication in the English factories where the cotton fibre is converted into a variety of tissues which the art of the manufacturer can enrich with designs that increase its commercial value. What is true of the exportation of American cotton to England is equally true of some of our own raw products, such as wood, flax, from which we do not gain all the profit that we could if our population had the means and the special knowledge necessary to give the raw material the forms under which manufacture can present them to commerce for application to the needs created by civilization. Nor must it be lost sight of that the value of any product whatever is determined as much and more, perhaps, by the market of the entire world as by the local market, and that the Canadian manufacturer is forced into competition with foreign manufacturers. This state of things is the result of modern progress, especially of steam locomotion and the establishment of telegraphic communication. The competitor, though absent and invisible in Canada, exists nevertheless, and at distances which modern science has wonderfully shortened. The tariffs may, to a certain degree, embarrass competition and protect an indigenous industry which is enjoying the timid attemps of infancy; they may prevent, in certain cases, the *amateur* from procuring an article of *vertu*, a beautiful object of foreign production, but they will seldom force him to buy an indigenous commodity which offends the laws of the beautiful. "There is but one effective way," says a man who has given much attention to the questton with which we are dealing, "for a "country to struggle against foreign competition in its "own market: it is to display as much taste and ability "in its own manufacture as the foreigner does in his." The great French economist, Colbert, who by no means hesitated to make protective tariffs, said, more, than two centuries ago, "Taste is the most skilful of all the trades."

Without allowing ourselves to be led into a kind of ideas that every one can contest, since no one holds the future in his hand, may we not here, in passing, throw out a reflection which has, at least, the merit of a hope the realization of which would be a true cause of congratulation to humanity. For the Western World, our century was born in the midst of wars; the battle-field was its cradle. The governments, constantly anxious for the morrow, were almost continually directing their attention to the proper means of assuring their existence against aggressions from without and to maintain their territorial integrity. Has this state of uncertainty at last ceased, at least for a considerable time? We might be induced to believe so, if we judged by the efforts that these governments are making, especially for some years past, to instruct the people in the arts of peace. Well, let the countries of Europe and the United States, with which we have commercial relations, devote to industry the half of the energy and activity of which they shewed themselves capable when they had a war in prospect, and the superiority of their products will be such that we shall be the tributaries of their industry during half a century longer. In a race for stakes, indifference is a false calcution, and, as far as progress is concerned, to remain stationary is to remain behind.

In Canada the cry has often been raised hat we must encourage industry, that we must protect our manufactures so as to retain with us our population and elevate the standard of public health. A nation of manufacturers, however, is not a thing that can be improvised in a day. Certain preliminary conditions are necessary, through the whole extent of the country, without which all legislation will remain a dead letter, every effort will be barren of result. One of these conditions is the instruction of the people in the direction of industry; the creation of special schools where the workingman may procure the knowledge which he needs to practice his trade. The workshop in a new country, may furnish to the workingman what is necessary for his daily subsistence; progress in industry is intimately connected with the devolopment of intelligence and the constant acquisition of new knowledge.

We will terminate this first part of our report by quoting to you a passage from a book published by Mr. H. Krusi, Professor in the Normal School of Oswego, N. Y.: "

"Besides the importance of design as a means of "education, the knowledge of design is also of great "practical value in many of the circumstances of life. "The knowledge of design is indispensable for complete "success in almost all the trades. He who can reproduce "his ideas by the aid of the pencil, rises to the front "rank in his profession. He traces as well as executes, "and naturally takes his places as leader and director. "The carpenter who designs well becomes a foreman, "and often enough, an architect. The mechanic who "designs, in many cases, becomes a successful inventor.

"To know how to draw is frequently a great help to "to the farmer; he can thus make the plan of his house, "adapt it to its surroundings and to the various uses "which it is to serve. Design enables him to describe "the particular vegetation, of which the name is un-"known to him, and the kind of insects which destroy "his harvests. He fashions his tools and implements, "and communicates his thoughts to others in a multi-"tude of cases where ordinary language would be pow-"erless.

"In the various kinds of manufactures the workmen "who have an aptitude for design and who draw skil-"fully are always in demand. For engineering and "architecture the knowledge of design is indispensable "to him who desires to practice in a professional manner. "Even to those who are engaged in the learned profes-"sions, design may be useful for various kinds of "research; and it always offers a source of amusement "during leisure hours."

Value of Merchandise.

(Extract from a work by Professor Koehler.)

"Manufactures involving skill and taste are more "desirable than rude ones, because, in the first place, "they command a higher price in the market, if we "regard only the time and labor bestowed upon them. "Brawn against brain in any field of labor never did "successfully maintain itself. What can be done by a "machine, or by an animal, that is, by mere brute "strength, we never esteem as we do work that can be "done only by the mind. While, therefore, the rude "laborer earns his dollar the dexterous laborer earns "two, and the skilled laborer three. Yet it costs just as

"much to support in health and comfort the rude "laborer as it does the one who is skilful and artistic.

"In the second place, rude manufactures not only have "the preference of the consumer against them, but "transportation also puts them at a disadvantage. Every "one must pay for getting whatever he produces to "market: and the real market in which he sells is the "place whence come the products he receives, directly "or indirectly, in exchange for his own. Hence the "rude laborer who exchanges his products for the less "bulky products of the skilled, artistic laborer must con-"tribute the most towards effecting the exchange. By way "of illustration, take a Geneva watch that has cost the "producer two hundred and fifty dollars by reason of "its skilful workmanship; suppose five dollars to be the "expense of getting it to market; then transportation "adds two per cent. to the original cost of the watch. "But transportation would add twenty per cent. in the "case of a twenty-five dollar watch. Again: take a "Turkish rug that has cost the producer five hundred "dollars by reason of its beauty, and another rug of the "same weight, that has cost the producer only ten dollars; "call the expense of transportation five dollars for each; "one per cent. is added to the original cost of the rug in "the first instance, and fifty per cent. in the second. "Bolder contrast might be named, but these are enough "to illustrate the fact that transportation even for great "distances can but slightly affect those manufactures "which are the most desirable. In a word, it costs but "little to transport skill and taste, but much, compara-"tively, to transport ignorance and raw material.

"In 1873, according to the statement of the American "Consul at Basle, the watches sent from Switzerland to "the United States were valued at $2,520,104 at the "point of shipment. To pay for them it would have "taken in Illinois, say, 5,000,000 bushels of corn. Now, "as each party must pay, by deducting from the home "price, for getting his own products to market, at what "a disadvantage transportation, in the suppose case, "would have placed the Illinois farmer! The Swiss, "making no allowance for distance, would have paid no "more for corn coming from Illinois than for the other "corn coming only from France. Little wonder, then, "that the Illinois farmer converts his corn into pork and "lard, so far as possible, before sending it accross the "Atlantic, that he may put into his own pocket the "difference in transportation. Again: in 1873 the "United States imported embroidered goods from Swit-"zerland to the value of $2,095,234,—a call for 4,000,000 "more of Illinois corn. Again, the same year and from "the same country we imported silk and silk goods to "the value of $5,224,116,—a call for 10,000,000 bushels "more of Illinois corn: making, in round numbers, "19,000,000 bushels of corn which would have been "necessary, had the payment been made in corn, as "supposed, to pay for three kinds of skilled, artistic "manufactures obtained from little Switzerland alone is "one year. Though without a port, yet has Switzerland "by means of her skilled, artistic manufactures secured "for herself a commerce larger, when compared with "her population, than that of any of her continental "neighbors. This astonishing feat she could not have "accomplished with rude manufactures. Cost of trans-"portation alone would have prevented.

"In the third place, skilled, artistic manufactures are "more desirable than rude manufactures, since they "give a better population. The population is better, "because it is more intelligent, intelligence being the "prime condition of manufactures. It is better because "it is more prosperous, has more money to spend in the "procurement of all that is essential to the comfort and "embellishment of life. Churches, schools, farmers, "gardeners—all share in the prosperity of the educated, "thrifty artisan. Compare the city of Worcester, Mass., "full as it is of skilled workmen of all kinds, with a city "whose manufactures are rude, and the difference "between the two will arrest the attention of the most "casual observer."

There would be little to change in the preceding extract to make it applicable to Canada. Who would dare to deny, for example, that, in our exchanges with foreigners, our woods play the part of the corn crops of Illinois? Nevertheless, wood is susceptible of a large variety of uses, and in some cases already, has been subjected to the processes of manufacture. Let this industry receive in this country all the development of which it is susceptible, and not only shall we have created work for our population, consequently wealth for our country, but we shall have also found the secret of preventing the rapid destruction of our forests.

MISCELLANY.

University Libraries in Germany.—The *Illustrirter Kalendar* publishes the following statistics of the contents of the university libraries in Germany: The library of the Berlin University contains 115,000 printed volumes and 40,000 charts. The University of Bonn contains 180,000 volumes, several hundred manuscripts and a large collection of maps. The University of Breslau has 340,000 volumes of books and 2,900 manuscripts. The Erlangen University has 110,000 printed volumes and 1,900 manuscripts, besides 50,000 treatises, 10,000 autograph letters and a collection of designs and engravings. The Freiburg University contains 250,000 printed volumes and 500 manuscripts. The Giessen University has 150,000 printed volumes and 1,268 manuscripts; that of Gottingen 400,000 printed volumes and 5,000 manuscripts; that of Griefswald 70,000 volumes; and that of Halle 100,000 volumes and 1,000 manuscripts.

The University of Heibelderg has 300,000 volumes, 70,000 treatises, 3,000 manuscripts, 1,000 charts, a collection of maps and another of engravings. The University of Jena has 100,000 volumes, and that of Kiel 150,000 volumes and several hundred manuscripts. The University of Konigsberg 220,000 volumes, in addition to about 50,000 double copies of books for the purpose of exchange. The University of Leipsic contains 380,000 printed volumes and 4,000 manuscripts. The University of Marburg has 120,000 printed volumes, but very few manuscripts. The University of Munich Contains 283,500 volumes, 17,500 manuscripts, 3,600 portraits and 3,200 medals. The University of Rostock has about 140,000 volumes; that of Tubingen 280,-000 volumes, 60,000 treatises and 2,000 manuscripts; and that of Wurzburg more than 200,000 volumes and 2,000 manuscripts. The library of the Strasburg University is said to contain 300,-000, of which 5,400 relate to the history of Alsace, and about 500 manuscripts.

The *Illustrirter Kalendar* adds that the library of the Vienna University contains 211,220 volumes and 83 manuscripts, and that the library of the Basle University contains 100,000 printed volumes, 4,000 manuscripts and 180 charts.

The Art of Hospitality.—The Art of Hospitality should be as devoid of art as possible, and is well summed up in the following:—

Welcome the coming guest; welcome him with a few simple, pleasant easy words, without ostentatious cordiality, without gushing declarations of friendship; without paralyzing his arm by an interminable shaking of hands; without hurry or flourish or due anxiety to have his trunk carried up to his room, or sandwiching between every sentence an anxious appeal to make himself at home; an appeal which usually operates to make one feel as much away from home as possible. Constantly taking it for granted, on the part of the host and his family, that one is uncomfortable, and that they must hurry about and take all the responsibility and self-helpfulness from the guest, thus depriving him of credit of common sense, is something

worthy of indignation ; all the more so because politeness forbids the least sign of impatience. It is ill-bred, it is not decent. It is insulting to the guest ; and he would serve him thereafter without ceremony. And yet how many of our well-meaning, and, in most cases, well-bred people fall into the error that unless they are constantly on the alert, and establish a kind of espionage over their guest, and watch his every movement, lest he should brush his coat or take a seat for himself, they will be wanting in courtesy. The art of hospitality consists in putting the guest at his ease ; and this does not mean telling him to be at his ease. It consists in making him forget that he is a guest, and not in constantly pushing the fact before his eyes. And it also consists in leaving to him the exercise of his senses, and of responsibility, at least, so far that finding what he needs at his hand, he may help himself.

Extremes Meet.—There is a saying among men of business that the two worst paymasters are those who pay too soon and those who pay too late ; that is, that extremes meet, and the excess of a virtue is as disastrous as the actuality of a vice. And so we find it in more things than the eager advance which throws the books awry, or the tardy settlement by which the business calculations of the firm are deranged. Take the two extremes of neglect and care for children as one illustration ; do we not come to precisely the same result in the ruin of health and character, if the manifestation of that result is as different as the method by which it is attained ? The child who is brought up as if it were an exotic in a hothouse—who is not suffered to go out in the heat or the cold, the damp or the wind ; who must not run because it will overheat itself, nor drive because of the draught ; for whom riding is dangerous., as the horse might run away, and all rough games are forbidden, as it might get an ugly knock ; who wears furs into May, and is well swathed in flannel during the dog days ; who goes to bed for a pricked finger, and is nursed for a head cold as the neighbour's child next door would not be nursed in a fever ; who must not eat this, and may only eat that, and whose most irrational fancies in the way of choice and refusal are attended to as the infallable signs of healthy instinct ; who is not to be contradicted nor thwarted, denied or disappoint d ; all of whose ways must be rolled smooth, its niche lined with cotton wool, its roses free from thorns, its life rendered exceptional and planned on a basis entirely different from that of other human lives—what is the end of it all but enfeebled health, flaccid muscles, inability to bear or to do anything unusual or unpleasant, and the most entire and intense egotism all through ? No other result can come about from a manner of bringing up which leaves out of sight the educability of the body and the strengthening of the faculties by use, which is founded on the idea that happiness and indulgence are synonymons, and that to learn the practice of self-restraint and self-sacrifice must needs mean to be moped and melancholy.

The neighbour's child next door is brought up on totally different principles. As soon as it can walk it begins its little career of independence, and to get it out of hand and let it find for itself is the chief desire of those charged with its due care and fit development. It is early initiated into that kind of stoicism which learns to take wounds and bruises, tumbles and troubles, quietly, for it finds but the roughest kind of surgery when surgery of a kind is absolutely necessary, and no shadow of sympathy. The line marked out for its education is "hardening," and the principle is pushed to the extreme. Out in all weathers—damp clothes not regarded, and wet feet laughed at as a good joke ; the falling snow and the burning sun encountered with the same indifference ; nothing short of absolute prostration by an illness with a decided name ensuring the smallest amount of nursing, and all the smaller ailments of catarrh, headache, indigestion, and the like entirely ignored ; suffered to eat everything, hedgerow trash for the one, and the stickiest of "stick-jaw" puddings for the other ; buffeted and tyrannised over, snubbed, jeered, worked, and under the harrow generally :—we have as the result a constitution ruined by want of care in the tender years, those years which make or mar the future ; indifference to others' sufferings' because of familiarity with its own ; the knowledge that the world is a battlefield where you must either give knockdown blows or receive them, where you must conquer or be conquered, and thought and care and compassion for others are all out of place, and impediments in your campaign, that is—a selfishness as intense as the selfishness of the over-indulged. But the difference is that the one is passive and the other active. The one is the selfishness of inability to bear what is unpleasant or to forego what is pleasant ; the other the determination taught by neglect to get what it wants, no matter who wants, no matter who suffers, having learnt by its own experience that heaven helps only those who help themselves, and that the weaker go to the wall, while the strong take the crown of the causeway.

Extremes of overwork and underwork in service and offices come exactly to the same thing in the end, for the amount of work done and the character of its doing, and also its quality. The overworked, by reason of pressure, can give only that superficial brush over ugly places which keeps things fair to the lye, however hateful in truth ; the underworked, for want of pressure, wax fat and idle, and put off to hours indefinite even the little that is laid on them ; whereby it comes about that when that little is perforce done it is done in a hurry and nearly as superficially as that for which the best will in the world cannot find enough time. The faculties which are worn out in overwork rust out by insufficient work ; and here again the circle is complete by the meeting of extremes, and the whole round of wrong is traced in broad and unmistakable lines enough. Extremes of cowardice and rashness end in the same thing too—the certainty of running into danger and not getting out of it again Cowardice, afraid of every step, meets rashness which does not look beyond. The one forbears to take the leap out of imminent peril by which all would be saved—the other jumps without looking where, and jumps into an abyss ; this lets himself be destroyed for want of courage to risk a sprained ankle in trying to save himself—that dashes himself to pieces for want of so much rational fear of consequences as would make a man sure of his landing-place before he takes his spring. The coward dares not but buy when stocks are low for fear they will go lower still, and dares not hold when the downward current has set in for fear the tide will never turn ; the rash, sure of that turn to-morrow, buys straight off for the account, and when settlingday comes round burns his fingers so that they are never able to be healed again. The coward is afraid to advocate the plainest truth against the popular opinion of the true and plain ; the rash thrusts every kind of untenable heresy down the throats of the strictly orthodox, then wonders that the reaction which his excess creates does as mu h harm as the advocacy of professed partisans on the other side. The coward will accept brickbats without a murmur, and submit to all sorts of indignities whereby tyranny is encouraged and the wholesale respect due to humanity is disregarded. The rash will not bear the unavoidable rubs of life by which the player at bowls must look out for rubbers, but fl ngs stones at shadows, and therewith sows a crop of armed men that pursue him to his hurt. At either end of the scale the two extremes meet at the same po nt ; and meanness of soul which bears injustice and oppression with bent knee and drooping head has no different effect on a man's life from that excessive "spirit" which will not bear the necessary pains of humanity. In either case the man is overpowered ; whether he submits without striking a blow for self-defence to the attacks of his oppressors, or invites his enemies to attack him by reason of the demonstration that he has made against them.

How often has not the extreme of love passed into the extreme of h te, and sometimes, if more rarely, the other way? What changes in political creed, in re igious sentiment have carried men from one extreme to the other—from Calvinism to Unitarianism ; from Romanism, where everything was believed, to free thought, where everything is denied ; and from the fiery current of ultra Radicalism to the absolute stagnation of the Conservative Rip Van Winkle. Again, when very strict and virtuous people go wrong, how often they go wholly to destruction, not stopping half way ike so many others, but fu filling the whole r und without a break. Hitherto they have been noted for a prudence that was prudery—a virtue that was extra to nature ; nowthey go headlong down the broad road, and keep none of the terms with propriety which even those whom once they would have spurned as children of evil think it good to keep. Where even the more th n shaky have some regard to appearance, and put on the drag for form's sake, the ultra virtuous gone over to the sinners go at a hard gallop down the hill—that terrible *descensus Averni !* and finish their journey at the bottom the quickest of all. So, the drunkard turned temperate, becomes a teetotaller who vilifi s the man who was never a dr nkard and yet is not a teetotaller ; for the sinner turned saint is sure to be as extreme as the saint

who has lapsed into sin. The man who has known the most poverty, if he becomes rich, despises those of his brethren who are still needy and unprovided, with even more disdain than does he who never knew the want of superfluities, and whose purple is without a rent or a stain; the City scrivener knighted feels prouder of his tinkling cymbal than the duke does of his silver trumpet, and the extreme of vulgar arrogance matches the extreme of highborn pride. So the world goes on; and for the most part mankind gives itself up to these extremes, and finds it wise to show a fine contempt for the golden mean and the middle way by which the unexaggerated guide their thoughts and direct their steps. But, just as frozen mercury burns the skin like hot iron, so do extremes on either side, and on any question, for the most part lead to evil and end in pain; and the *tutissimus ibis* is now as ever to be found *in medio*.—(*From the Queen.*)

Early Rising.—Why is it that folk who like to do a thing are not content to do it, and leave others, unadvised, to act for themselves? Why should they insist on putting everybody into their pint measure, and condemning all who happen not to fill it exactly? This peculiarity is conspicuous in social habits, in the routine of every-day life. The man who confines himself to two meals in twenty-four imagines he has cause of grievance against the man preferring three or four meals. The woman who enjoys society and travel feels uncharitable towards the entirely domestic stay-at-home body.

In nothing is this trait more observable than in getting up in the morning, about which people differ so very widely. They who choose to lie late are amiable enough towards those who believe, from a queer sense of hospitality, that they ought to welcome the dawn; that the dawn would be distressed unless they should co operate with it, and keep it in countenance for its premature coming. But the early risers are not so kindly or so tolerant. If not positively inimical to the late lier, they greatly disapprove of him wholesome countel against his habit.

Can any one tell why the mere fact of being up at or before daylight yields to a man an assurance of a moral superiority? What specific and shining virtue is there in leaping out of bed and dressing one's self in the dark? What crown of honour is conferred upon the fellow who, unable to sleep in the morning, bounces up betimes to advertise such incapacity? These be subtle questions, and their answers inhere in the mysterious root of things. But there can be no question that the habitually early riser conceives that the Ten Commandments are conserved in him, in addition to an ample system of ethics. When he appears at breakfast, he is very likely to ask those at table when they rose, feigning ignorance on a point on which he takes particular pains to be informed. Having been told that they rose at six, or seven, or eight o'clock, he invariably announces, with grand gusto, "Why, I was up two hours before any of you!" Then he proceeds to patronise in a very lofty manner, the inferior mortals who are not ashamed to confess that they have no prejudice in favour of getting up in the middle of the night. Nor is he content to enjoy this exalted triumph once, twice, thrice, or twenty times. Every morning he plumes himself anew, puts the same question, and each time adds to his moral worth and personal consequence.

What offence is there in sleep, that to protract it in the morning should be visited upon us so severely? Casuists have informed us that man is always sinning, except in sleep, which should therefore be ardently encouraged, whether before or after dawn. Do the Seven Sleepers typify the Seven Deadly Sins, or does the early riser design to bamboozle our theology? We suspect the latter, for he is an incomprehensible, wholly inconsistent person, who obviously thinks that his matutinal self-elevation should atone for any and all other defects whatsoever. It is not sleep, but sleep in the morning to which he is hostile. He is fond of saying that we cannot be in bed too long before midnight, or too briefly after daybreak. And then there is some sort of iniquity appertaining to the bed. He himself will frequently get up at four or five o'clock, and, after dressing, descend to the library or sitting room, throw himself on the lounge, and be dozing in five minutes. He does not feel any shame for this either, although at breakfast he will be ready to hector his sons or brothers-in-law, who were at the same time inaudibly asleep overhead for being irredeemable sluggards. It is noticeable that the early riser often compensates himself for his greeting to the dawn by frequent naps between that hour and his regular bed-time. He gets up, but only to lie down again; he is not up for all day, nor is there need of it, in his judgment, after he has performed the one important duty.

The whole matter lies in this: it is good for persons to rise early who want to do so, or who have something to occupy them, but they who have no necessity, and enjoy sleeping, ought to be privileged to lie abed without discredit or condemnation. This is rank heresy we are aware, but we are averse to fanaticism even on this time-honored subject. There are virtues altogether independent of the hour of getting up, and some men who have slept late have gone to their graves with blameless records, and left large estates for their kindred to quarrel over. To get up merely for the sake of getting up is not of necessity a saving grace, and vices might be named—it is true they are deep and dark—which it will not expiate. Late sleepers have so long been bullied and persecuted that they would seem to have earned indulgence. The inexorable early riser should compassionate them at last, and permit them to go to perdition, if they will, on downy beds of ease. Even if they be resolved to rush upon destruction from hair mattresses, let them rush, while he may seek absolution for non-interference by getting up for six months at two o'clock in the morning.

It is well not to be beguiled by saws and counsels on the subject. Most of them had their origin in a distant era, and under conditions totally different from those now existent. Our remote ancestors went to bed early because there was nothing else to do. Their descendants of to-day go to bed late and get up late for very much the same reason. Country folk seek their pillow from sheer fatigue, from weariness, from want of mental stimulant. City people avoid their pillow, for at dark their recreation begins, and the joys of the night are poetic and manifold. The latter half of the nineteenth century is an age of gas-light, of midnight suppers, of nocturnal pleasures, of turning night into day. He who goes to bed early cannot see the realities or the ghosts of the time, and to rise early would subject him to a splendid isolation, besides fitting him ere long for a sleep in the cemetery.—(*From the N. Y. Times.*)

History in Schools.—There is hardly any department of education which has attracted more attention of late years than history. A generation ago it was almost wholly neglected. Boys were expected to learn the main outlines of Greek and Roman history; but the development of modern nations was ignored, even that of England being only superficially studied.

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Two theories of the proper mode of teaching history are now frequently discussed. One is that a particular period should be selected for study, not the whole history of a people or of the race. The other theory favours exactly the opposite course. The ground of the former is that if too wide a field is gone over it is impossible to interest young students. Their attention, it is insisted, is distracted by the mass of facts they must master, and as a rule they forget almost as quickly as they learn. On the other hand, a special reign, or a special series of events, may be examined with tolerable minuteness, and it is possible to form some degree of intimacy with the figures that stand prominently forward on the foreground. There is undoubtedly some force in this contention: but it overlooks one fact—that no historical period can be perfectly understood if taken apart from all other periods. Every one ought now to be familiar with the idea of the continuity of history. The best recent historians object even to the venerable distinction between ancient and modern history, on the ground that although it may be of service in marking profound differences, it gives the impression that there was at one time an absolute break in human progress. It is impossible, they urge, to point to a date when what is called ancient history stopped and modern history began. Each shades into the other, and the earlier have left their traces in every important elements of the later developments. For a like reason an energetic historical school has long protested against the custom of treating the Norman Conquest as the true starting point of the history of England.

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The chief blunder hitherto made in teaching the history of a nation or race has been the attempt to impress on the minds of pupils far too many dry facts. Most men and women remember with horror the lists of dates they were expected to learn at school: and they may be excused if they do not see any very great benefit that sprang from this overburdening of

the memory. What is really needed is not an enormous number of details, but an intelligent comprehension of the broader aspects of history—a general view of the direction of progress, of its leading stages, and of the great forces by which it has been effected. In no other way is the imagination touched by the subject and curiosity awakened and sustained. At the same time it is to the individual element that attention should be chiefly directed. We all know that in the long run general causes are even more effectual in producing change than the influence of individual minds; but these causes can always be most forcibly suggested by the study of individuals. Luther did not really produce the Reformation in Germany; but acquaintance with his character and activity forms by far the best introduction to the study of that vast movement or series of movements. The age of Louis XIV, is not summed up in him, but it is most readily understood if its main facts, so far as France is concerned, are grouped around his name. The difficulty is that in using the foremost name of an age in this way, ordinary schoolmasters are apt to overlook everything with which it has no direct connection. Yet nothing is more certain than that history should include a reference to all the deepest elements of national life. It is not less important to understand the work of Michael Angelo than of Pope Julius II, or the works of Shakespeare than that of Queen Elizabeth Politics, literature, art, and all other great departments of activity exercise more or less indirect influence on each other; and when the whole movement of a people is studied, none should be left out of account. So long, however, as they are not the object of special study, they can of course be presented only in general outline.

There is one reform in the teaching of history which is urgently needed; and that is its intimate association with geography. At present, maps are too often not referred to in connection with history, and when they are the reference is usually only to maps of the world as it is now divided. This is the source of endless blunders. A boy, for instance, hears of Saxony in the twelfth century; he at once thinks of the Saxony of to-day, and the chances are that he never quite gets over the confusion. Even when no absolute mistake results from the existing system or absence of system, it neglects an obvious mode of making the mind retentive. Every school in which history forms part of the course ought to be provided not only with maps, but with a series of historical maps; and not a town or boundary should be named without instant reference to its position. If this was done history itself would be more intelligently learned, and geography, now one of the dullest of studies to young people, would receive fresh interest. It will be all the better if, when geography is the direct subject of study, it should be illuminated by as many allusions as possible to historical associations.—(*From the London Globe.*)

Spectacle of the Heavens.—I had occasion, a few weeks since, to take the early train from Providence to Boston; and for this purpose rose at two o'clock in the morning. Everything around was wrapped in darkness and hushed in silence, broken only by what seemed at that hour an unearthly clank and rush of the train. It was a mild, serene midsummer's night; the sky was without a cloud, the winds were hushed. The moon, then in the last quarter, had just risen, and the stars shone with a spectral lustre but little affected by her presence; Jupiter, two hours high, was the herald of the day; the Pleiades, just above the horizon, shed their sweet influence in the east; Lyra sparkled near the zenith; Andromeda veiled her newly discovered glories from the naked eye in the south; the steady Pointers, far beneath the pole, looked meekly up from the depths of the north to their sovereign.

Such was the glorious spectacle as I entered the train. As we proceeded, the timid approach of twilight became more perceptible; the intense blue of the sky began to soften; the smaller stars, like little children, went first to rest; the sister beams of the Pleiades soon melted together; but the bright constellations of the west and the north remained unchanged. Steadily the wondrous transfiguration went on. Hands of angels hidden from mortal eyes shifted the scenery of the heavens; the glories of night dissolved into the glories of the dawn. The blue sky now turned more softly gray; the great watch stars shut up their holy eyes; the east began to kindle. Faint streaks of purple soon blushed along the sky, the whole celestial concave was filled with the inflowing tides of the morning light, which came down from above in one great ocean of radiance; till at length, as we reached the Blue Hills, a flash of purple fire blazed out from above the horizon, and turned the dewy tear drops of flower and leaf into rubies and diamonds. In a few seconds the everlasting gates of the morning were thrown open, and the lord of day, arrayed in glories too severe for the gaze of man, began his course.

I do not wonder at the superstition of the ancient Magians, who, in the morning of the world, went up to the hill tops of Central Asia, and, ignorant of the true God, adored the most glorious work of his hand. But I am filled with amazement when I am told that in this enlightened age, and in the heart of the Christian world, there are persons who can witness this daily manifestation of the power and wisdom of the Creator, and yet say in their hearts, "There is no God."—*Edward Everett, at the inauguration of the Dudley Astronomical Observatory.*

Rest—Repose—Sleep.—One needs rest from cares, watchings, and mental excitement quite as much as from manual labor. Indeed, brain work is much more exhausting than mere bodily work. One may set his physical machinery in moderate motion, and keep it in vigorous action, with brief stops to lubricate or feed, day in and day out, without exhaustion. Manual laborers, who do not dissipate, are invariably sound sleepers; while the writer, teacher, speaker, and thinker, is liable to wakefulness, owing to his greater *mental* activity.

The laboror needs rest, food, and sleep to restore him; while the thinker needs these, and also a period of mental repose before sleeping, to establish equilibrium between body and brain. His mind must not be kept on a stretch. The mental bow must be unbent, or even his sleep will be fatiguing instead of restful and restoring. Watching night after night with the sick, and sleeping in snatches, is unsatisfactory. Besides, the duty of vigilance obliges the watcher to carry his or her patient constantly in mind, and this wears one out.

When possible, we should so shape our course as to take enough out-of-door fresh air and physical exercise to bring all parts of our physical and mental machinery into harmonious action and give the whole ample time for rest, repose, and recuperation. Sound sleep is 'nature's sweet restorer.' Let us make sure of this, even though our food be insufficient. Good sleepers seldom go crazy. Poor sleepers are liable at any time to break down, get off the track, commit indiscretions, become irritable, seek to injure others, commit suicide, or culminate in a lunatic asylum.

No exact rule as to the time one should sleep can be given. One is satisfied with six hours; another wants eight; and another ten. Children should sleep from one-half to three quarters of the time. Adults may do with less. Very few under eat; very many under sleep.

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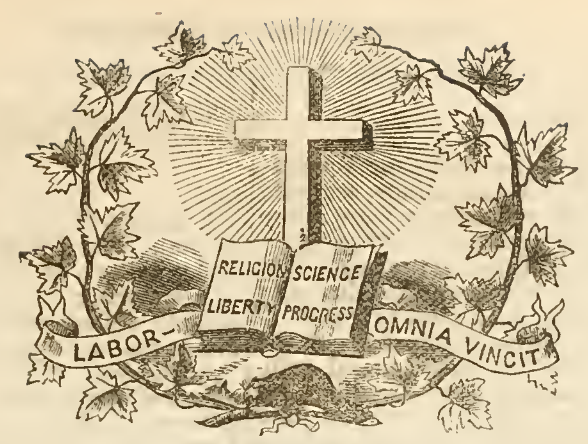
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Drawing as an Element of Advanced Industrial Education.—(*Concluded.*)

BY C. B. STETSON.

STEPS IN REPRESENTING SOLIDITY.

The work should begin with the simple forms of solid geometry, the circular being drawn before the plane-sided, as the former present less difficulties than the latter. It is an absurdity of which many are guilty, to base the drawing of circular solids and objects upon the drawing of the more complicated plane sided ones. After the geometrical solids, objects of corresponding shapes are logically in order; these to be followed by ornament in relief, and by casts of natural forms and of the human figure; the course to conclude with drawing from nature and from the living figure. The first aim should be to represent the objects in perspective outline,—the literal form. When this has been mastered, light and shade can be properly added; and then a steady light must be had, as when it is admitted into a room only from the north or northeast.

Some object vehemently to the use of flat or printed copies in this kind of drawing. Of course the only genuine object-drawing is drawing from the solid itself. But it does not require much pedagogical acumen to discover that flat copies, supplementing the solids, can be made greatly to facilitate progress at the outset. Both the printed copies and the objects should be as beautiful as possible, in order that the taste of the student may be elevated while he is learning to draw.

It will be well here to observe that there is a kind of drawing executed entirely with instruments, which is called linear perspective, and sometimes simply perspective, as it is the only drawing that conforms literally to the meaning of that word. This kind of drawing is often employed, even by those who regard themselves as experts, to explain the principles to be observed in drawing from the round or the solid. But only confusion results from thus mixing the two methods, since they have so little in common,—since they differ both in principles and in aims. Linear perspective is employed to a limited extent by artists, but is chiefly used by industrial draughtsmen. It is the only means by which the architect, for example, can make from his working-drawings, a pictorial representation that will show, with a near approach to the truth, and in advance of construction, how a building will look when completed. It must, therefore, be regarded as an element of advanced technical instruction.

There are two methods, sometimes called the direct and indirect, of making perspective representations from working-drawings. The processes of the former are the easiest of explanation, at least for one who already has some knowledge of orthographic projection. but are not always the easiest in application.

MECHANICAL DRAWING.

As to the representation of the three dimensions, without pictorial effects, by plans, elevations, sections, etc., for the guidance of workmen, only a word more need be said. Descriptive geometry, or orthographic projection, forms the basis of this kind of drawing, which begins with the varied representations that may be made of geometrical solids, and then proceeds to practical applications in the different industries of the principles thus demonstrated. The same general principles of representation are involved in drawings for all kinds of constructive purposes, so that when they have been learned for one they have been learned for all, and these principles are derived from geometry. Indeed, *geometry, in some form*, should be recognized as the true basis of every variety of drawing, whether industrial or artistic.

Since drawings of objects to be constructed represent them in parts and without pictorial effects, they consequently make a special demand upon the imagination. Not only the draughtsman who prepares such drawings, but the workman who receives them for his guidance, must make from them, by an effort of the imagination, a vivid mental picture of the object required. Hence, the ability to "see in space," as it is often called, to realize form by an intellectual effort, becomes a matter of decided importance in technical education. And hence the imagination should be well trained both by drawing from the actual solid, and by representing the three dimensions orthographically. For the purposes of instruction in the latter case, flat copies must be the chief reliance; but these need to be supplemented by corresponding solids to assist the first efforts of the callow imagination.

THE IMAGINATION.

Let it be noted that the sculptor and the painter need the very power which the mechanical draughtsman requires, of realizing form in space by an effort of the imagination. And so instruction good for the latter cannot be, as some so loudly protest, injurious for the former. They have, at least, this most important use of the imagination in common. It is quite as rare a thing to find a mechanical draughtsman with an imagination equal to all the requirements of machine drawing, as to find a sculptor equal to all similar requirements of his art. A good course in orthographic projection would help any artist, while it is an absolute essential of advanced technical education.

There is another mode, a very simple one, which is sometimes employed in certain cases to represent the three dimensions for constructive purposes. This is isometric projection, which combines plan and elevation in one drawing, and affords an interior view when required. A working-drawing and, in a certain sense, a picture at the same time.

MATERIALS.

Just a word now about the materials employed as vehicles of expression, and to which we are indebted for terms designating different varieties of drawing, as instrumental drawing, point drawing, crayon drawing, stump drawing, charcoal drawing. For the purposes of advanced technical education, the hand ought to be accustomed to the use of different materials. Change of material does not necessarily involve change of work; for whatever materials may be used, the student must work according to certain broad, underlying principles, found, when properly sought, in one or the other of the great departments of drawing which have been described, and are, in brief, as follows:

RECAPITULATION.

1. Drawing two dimensions. Freehand and instrumental. For decoration, for designing the forms of many objects, and for mechanical purposes.
2. Drawing the three dimensions from the solid or round. Effects of chiraoscuro. Freehand. For both artists and artisans, but especially for the former.
3. Drawing the three dimensions, with perspective effects of objects to be constructed. Instrumental. Not to be confounded with drawing from the solid. For both artistic and mechanical purposes, but especially for the latter.
4. Drawing the three dimensions of objects to be constructed; no chiaroscuro, but orthographic representation to a scale. Instrumental. For artisans.

And so it may very properly be said of drawing, that it rests on a broad basis of definite principles, and that its applications are infinite. It is the universal language of form. The foreigner who understands this language can, upon entering any first-class American workshop, go at once intelligently about his work, while an American ignorant of it would have to be directed at every step. This language, of such vast scope, is not to be learned in a day. No mere trick, no mere device or universal patent recipe can put one in possession of this hundred-handed instrument of art and industry. Therefore beware of drawing-quacks.

DRAWING IN TECHNICAL SCHOOLS.

If we examine the curriculum of any good school for advanced technical instruction, we find that drawing occupies a large space. This is for the civil engineer, for the architect, for the ship builder, for the machine draughtsman for the designer of manufactures, for the decorator, for the founder, for the miner, for the farmer, for almost every human industry. Some industries require more, others less of drawing; and it goes without saying that each industry must have its special requirements, though there are certain things that belong to them all in common. In the best technical schools there is no haste to reduce the instruction to a rigid specialty in the case of any student. With workmen the case is different.

VALUE OF BROAD INSTRUCTION.

Experience has shown that he succeeds best in any particular kind of drawing who has been instructed in all kinds. Thus the knowledge of the architect, for example, should not be limited to the requirements of construction: he should know how to decorate: he should be able to give his perspective drawings an agreable background of sky and earth, with animal and human figures- The designer for pottery or textile fabrics will do his own work better, when his knowledge of the art of design is comprehensive enough to make him intelligent in furniture and the grouping of figures in a picture. But it is not necessary to enlarge on this point.

PARTS OF DRAWING ADAPTED TO DIFFERENT AGES.

As drawing like everything else, has its elements which can be learned in childhood and early youth, these elements should not cumber the curriculum of the technical or advanced industrial schools, but, like those of arithmetic and grammar, should be made a requisite for admission to the technical schools. Were such the case, *there would be saved certainly one year of the time* which the student is now obliged to spend in

a good technical school. The course could be shortened by that much, or, better yet, the standard of instruction could be raised.

When the public schools do their duty by drawing, this advance on the part of the technical schools can be readily made; for then their students will come to them well-grounded in all the elements of drawing. They will have their eyes trained to quick and accurate perception, and their hands to quick and accurate execution with or without instruments. They will possess no mean knowledge of the true nature of design and decoration. With the universal principles to be observed, when one represents objects in chiaroscuro, they will be familiar; and also with those general principles and methods of representing the three dimensions orthographically which are employed in every variety of mechanical instruction. From all this there will come, in addition to the definite knowledge and manual skill, much culture of the taste, imagination, and inventive faculties. It should be remembered that drawing is *more a matter of knowledge than a mere manipulative dexterity*, and that an exhibition of drawings is to be judged more by the knowledge it displays than by fineness of execution.

GENERAL CULTURE.

General culture and general utility afford ample justification for teaching in the public schools all that has just been enumerated. This forms the soil from which technical instruction springs, but is not technical instruction itself, as it does not embrace specific applications in the different industries. It is for common service: and as the pupils in the public schools study language in some form, and mathematics in some form from the beginning to the end of their course, so should they, in the same continuous manner, study drawing and art. That this may be done, without diminishing the proficiency of the learner in the old school studies has been abundantly proven by experience.

COURSE OF INSTRUCTION.

As to the details of a suitable course of instruction in drawing, either for public schools or technical schools, nothing will be said here. Those who wish to know these details should visit and study the Centennial Exposition. Nearly all the products there shown illustrate in one way or another, the practical application of drawing. Let these products be studied until one realizes how much a knowledge of drawing must have contributed to the result. Then let the education curriculums shown in the Exposition be carefully examined. Finally, let the products and the curriculums be compared. This curriculum provides for such instruction in drawing. Is it sufficient to yield the products displayed in the exposition? No. Then it is not sufficient for public and technical schools, since it is not a measure of the Exposition. But another curriculum provides for such instruction in drawing. This is equal to the requirements of the Exposition, is a measure of the Exposition, and so is equal to the requirements of the school. Nothing less will fill the bill.

A study of the Exposition will show that Russia probably exhibits a better system of technical instruction than does any other country. She has not yet results sufficient to illustrate it. But the system is a full measure of the Exposition. The exhibit made by Massachusetts, of work actually done in her public and technical schools, is unequalled by any other exhibit. For every feature of the Exposition, industrial or purely æsthetic, her educational display shows a corresponding feature. Especially does she deserve the palm for what she has achieved in the way of drawing in her public schools, during the last four years. And let it be observed that what she has done, not only for drawing but for music also, in the public schools, has not been at the expense of other branches, as the results show. The educational exhibits made by Sweden, Belgium, the Normal Art School of South-Kensington, by Switzerland, Holland, and some others, will well repay him who is in search of light on the subject of technical or advanced industrial instruction.

Materials, as well as plans and results, should be carefully examined. Much the most extensive and meritorious display of materials for instruction in drawing is made by L. Prang & Co., of Boston. They exhibit materials for all grades of pupils, from the lowest primary to normal art and technical schools. These materials consist of flat copies, manuals, models, casts, etc., to be drawn in line, in light and shade, and in colors, and all systematically graded. European government regard good drawing materials as of so great consequence that they make it a part of their official business to see that the very best are provided for the use of schools. But such a thing cannot be in this country. How fortunate, therefore, are we, in finding a business house, like that of Prang & Co., with sufficient means, enterprise and intelligence to provide for American schools drawing materials so excellent as to command the approval of European experts.

The necessity of drawing as an element of advanced industrial education has now been described in general terms; and a sketch has been given of the leading features by which all sound instruction in drawing must be characterized. This instruction should begin in the public schools, with those elements which are of universal utility, and be completed in technical schools, with those special applications required by the different industries. When drawing receives, as it must ere long, its due consideration in this country, it will work a great and beneficial revolution,—much greater than appears upon the surface,—in public instruction and in the condition of labor.—*New England Journal of Education.*

The Limitations of Education.

According to the highest views of education, but few are educated. Alas! such is the truth—the melancholy, incontestable truth. The past history and present condition of the world,—intemperance, war, slavery, bigotry, pride, uncharitableness, self-seeking,—prove it to be true. But what is the moral conclusion from these admitted premises? Surely not that we should despair, but that we should labor, that we should agonize with laboring. The present condition of the race is as much below attainable perfection as it is above possible abasement. The empyrean above is as much without a dome that shall forbid our ascent, as the abyss below is without a bottom that shall arrest our fall. In mid-space we stand. Ascent and descent are equally open to us.—*Horace Mann.*

Chinese Schools and Education.

By the Rev. E. R. Barrett, B. A.

In the *Pekin Gazette* for January 8th, 1876, as translated in the *North China Daily News*, an edict appears from the Empresses to the following effect: "The

Emperor having ascended the throne whilst still of tender years, it is most needful that his studies be undertaken in due time, and be pursued with continual progress to the end, that the results of education in the course of right may be secured, and the foundations whence good government takes its rise be laid straight." After this pompous introduction the edict commands the Board of Astronomers to select "a day of fortunate augury" for His Majesty to commence his studies, and appoints the officials who are to act as preceptors, who are then enjoined as follows: Let them, on each morning and evening, address him with suitable admonitions, and devote themselves with thorough attention to the inculcation of learning, in order to prepare the way to fruitful results." The translator of this edict adds that no mention is made of an important appointment in such cases, namely, of the child who is selected to share His Majesty's studies, and who acts the part of a *souffre-douleur*, or "whipping boy." It is considered an act of profanity to reprove or strike the "Son of Heaven," and hence, whenever his youthful majesty is naughty or inattentive, the "whipping boy" is beaten or disgraced.

It may perhaps be interesting to some to know a little of the system of education that prevails in China. The respect paid to learning by the Chinese is well known; it descends to the most trifling materials employed by a scholar, so that his ink, ink-slab, pencil, and paper are popularly designated "the precious things." It is emphatically a reverence for letters, for the slightest scrap of paper that has been written on, even though it bear but a few hastily-scrawled characters, is treated with such respect, that not only in every house, but on all the public thoroughfares, there are receptacles—bearing the inscription. "Reverence and pity the character"—in which to deposit all such paper, and from which, at intervals, it is removed and burnt at the shrine of learning. Learning takes the first rank in China; its aristocracy is an aristocracy of scholars, and even military mandarins are socially inferior to the civil officers of the Empire. Let us examine how these results, many of them so excellent, are secured. It must be premised, first of all, that education in China is entirely undenominational and secular. It may not be without advantage to remember this fact in England at the present time, in view of recent controversies, for the influence of idolatry over the Chinese is undeniable, yet this influence is exerted altogether apart from the schools. The pupils are admonished with many a moral maxim and the greatest respect is inculcated for the sages of past ages, but there is no connection between education and idolatry. Never does the pupil hear the slightest reference to the popular idols of the country, nor is he in any way, directly or indirectly, indoctrinated into the religious systems of Buddhism or Taouism. It is the influence of the home alone, and especially of the mother, that leads to the propagation of idolatry.

There are different ways of conducting education, according to the means of the father. In the case of children of rich parents private tutors are employed, who, in ordinary cases, receive a salary of £6 to £15 per year, living with the family. This sum is about equivalent to a private tutor in England receiving from £60 to £150 a year, for in such comparisons it is necessary to remember that the rate of expense incurred by a native in China is roughly about one-tenth that of a European in his own country. Where more highly educated men are engaged as tutors to the elder sons of a wealthy man, the rate of day varies between the limits of £30 and £70 a year. But such men are mostly high graduates not in official employ.

Schools abound everywhere; there is not a village or a hamlet in the country without its one or more schools. Some of these are opened by needy scholars on their own account, who are thankful if they can earn three or four dollars a month, and often have to supplement their slender means by practising medicine, or, in the case of the very poor, by telling fortunes. Frequently, neighbours will agree to engage the services of a teacher between them, and the school is held in the house of the proposer if he has an empty room. In such cases the number of the pupils never exceeds eight or ten; while in the lower class schools, open to any who choose to attend, there are sometimes as many as thirty scholars. The schoolmaster never employs an assistant. The fees paid in these schools vary with the age of the children or the grade of the school; for the youngest scholars perhaps a shilling a month would be a fair average of the cost of tuition for each child, while for elder ones as much as four shillings to eight shillings will sometimes be paid. In all cases the school fees are paid three times a year, and are accompanied with a small present of food. There are no boarding, charity, or infants schools in China. Girls are occasionally educated along with their brothers by a private tutor, and an educated woman is treated with marked respect; but the very way in which a lady who can read is regarded is proof how few there are who are able to do so. There are no schools for girls, nor is it considered disgraceful for the daughters even of rich and educated men to grow up utterly ignorant. The age at which a boy begins his education is about six years old, until which age he is allowed unlimited time for play. As the time approaches for the commencement of school life, the thought becomes an all absorbing one in his mind. For days past he has been hearing fearful stories of the inhuman propensities of his future teacher, of his cruelty and strictness, until the poor little lad begins to regard his school life much as poor Smike thought of Dotheboys Hall. On the morning fixed for his introduction to the school his mother brings him some poached eggs to eat, instead of his usual basin of rice, with the object of loosening the tongue and imparting wisdom, after which he is led by his father, not without much shrinking and many a cry, to the school. Here a servant has preceded them bearing candles and incense, together with a small gift of money to the teacher; and on their arrival the "new boy" is led up to a tablet or scroll hanging on the wall, on which is inscribed the name of some great sage, patron of schools and all schoolboys, and supposed to represent his spirit. Here, first the teacher, then the father, and lastly the pupil, prostrate themselves in reverence, after which they advance with much solemnity to the middle of the schoolroom, where a crimson cloth is spread on the floor, with a small bench standing in the centre. A little ceremony is again gone through here, the father insisting on the teacher sitting, while he as obstinately refuses, the friendly strife being compromised at last by their both standing, one on each side, while the overawed boy bows down to the ground, this time in reverence to his teacher. Four times does he knock his head on the floor, while the schoolmaster responds by a low bow; at the conclusion of which the father and the teacher salute each other and offer mutual apologies, the boy is shown to his seat, and the regular routine of school life begins. The scholars sit at little desks or tables, each with his ink-slab, pencils, and books before him, while the master sits at the end of the room. Very different is the appearance of a schoolroom in China from anything we are accustomed to in other countries. Fireless, even in the coldest

winter; windowless, unless the light be admitted through a frame of oyster-shells; without any ceiling but the tiles of the roof, and often with no floor but that of the mother earth—a more miserably cold, cheerless, and dirty place than a Chinese schoolroom can hardly be imagined. And the noise! This defies description. If the school be a large one, you can hear it right down the street—a perfect hubbub of a score of children shouting out their different lessons all at the some time, and in a monotonous sing-song voice without a pause or a variation. Here, from nine or ten o'clock in the morning till six o'clock at night, the lads grind away at their books; nor is their work finished then, for, unless they be very young, they no sooner reach home and have had their tea than they are set to work again at the old sing-song chant until ten or eleven o'clock at night. There is no play-time, nor any break during the day for rest or recreation, except the short space each pupil takes to run home and eat his rice in the middle of the day. But, worst of all, a Chinese schoolboy has no regular holidays;—with the exception of a fortnight or so at New Year's time and an occasional break of a day owing to a public festival, school-life is one continuous system of cramming year in and year out. From this it is evident there is no need for playgrounds, nor do you often see boys engaged in play; if you meet them in the street, it is generally either on their way to or from school. This seems a great tax on any lad, but the brain is exerted so little—the education being confined at first almost entirely to learning things by rote, without regard to the sense of what is learnt—that it does not seem to affect the health of the boys. Probably, too, a light vegetable diet and the exposed and draughty nature of all Chinese houses make it less necessary to take much exercise. But it is dreary work in the best case, and it is hard to see how any love of study can be fostered by such a method of education.

A Chinese school is not divided into classes, but each pupil is taught separately by the master; nor are there any school examinations at any time during the year, and consequently there are no prizes or rewards of any kind. Thus one great element of stimulus—mutual emulation—is entirely wanting. The punishments administered for inattention or forgetfulness vary with the disposition of the master; the most usual form of correction for slight offences being to rap the forehead with the knuckles, and if this be ineffectual the pupil is compelled to stand to his work. For graver offences, caning is resorted to, generally given on the palm of the hand, while the worst punishment of all, reserved for the very refractory, is to compel such to kneel on the floor and repeat their lessons in that attitude. No Chinese teacher is so foolish as to punish himself by dismissing any boy from his school; he finds it hard enough to get a living in any case. On assembling in the morning, the pupils first bow before the tablet of Confucius in honour to his memory or spirit, and then salute their teacher in the same way, after which work begins. There are no primers in use for the education of the Chinese, nor has any attempt been made to shorten the laborious task of learning the characters. A beginner is supplied with a number of little square pieces of paper, on each of which a character is written, and his first work is to learn the unknown sound attached to each. After the sounds of a thousand or more characters have been learned in this way, he advances to one of the so-called elementary books, the most popular of which bears the title of "The Three-character Classic." This little book contains about a thousand characters arranged in groups of three, each pair of three rhyming with the next pair. The whole of this is committed to memory by degrees, and as each section is learnt the pupil is called up to the master's desk and made to repeat it *verbatim*. This they call to *back* the book, because the pupil has to stand with his back turned towards the master while repeating his lesson. By the time he is about eight years old, supposing the boy to have entered the school when he was six, he is prepared to begin the "Four Books," which are slowly committed to memory as before. All this time the pupil is utterly ignorant of the meaning of what he has been reading; so far, his education has been simply learning by rote pages and pages of sounds, which by constant revision become at length so ingrained into his memory that he is able to repeat whole books with the rapidity and accuracy of a sailor telling the points of the compass. And so the process goes on four years, instruction in writing being interspersed with the reading. This is taught by means of large characters printed in red ink which the beginner has simply to trace over with a fine paint brush. This is a very important part of education, and in this they certainly excel us, for bad writing and bad scholarship are synonymous. The greatest attention is paid to the way the characters are drawn, until each stroke is finished with the utmost delicacy of touch. By the time a boy is twelve or fifteen years old, he can usually repeat the greater part of the principal classical books, though still ignorant of their contents; and at this age numbers naturally leave school and enter business, where they are taught to calculate (arithmetic is no part of the education of a Chinese scholar), and the routine of their future livelihood. Such remain, to the end of their lives, ignorant of the meaning of the books they have been for years so diligently committing to memory. Ludicrous illustrations of this occur almost every day, when one meets with numbers who are able to read all the characters in ordinary use, so far as giving their right sound is concerned, but are as ignorant of the meaning as though it were a foreign language. This is due to the fact that the spoken dialects of China differ so considerably in style from the composition employed in books, and the sounds in the two cases are also dissimilar. Two native scholars are able to carry on a conversation for a considerable length of time in the presence of an uneducated man speaking the same dialect as they, without his having the slightest knowledge of the purport of their talk. So, too, a Chinese book read aloud even to a Chinese scholar is quite unintelligible, unless translated into the vernacular.

In the case of those scholars who are intending to enter the public examinations, the course of study is different, and much more extended. After having learnt by heart several of the books, he begins to learn their meaning, and also the meaning of the commentaries on them which he has also previously memorised. Side by side with this, he is set to the task of composing essays. These essays are an all-important part of a scholar's education, for by his skill in making them he takes rank in his examinations, and find his position in the estimation of his friends. But a more profitable method of wasting time could hardly be devised, nor can one imagine anything more lamentably void of interest or use than the thoughts expressed even in the best of them. The text in all cases is a theme selected from one of the classics, upon which a series of remarks are strung together so trite and vapid, that even in the case of the highest examinations the essays would also disgrace a schoolboy at home. Their merit is estimated by the Chinese according to the absence of

original ideas and of freshness of language. They ought to contain nothing for which you cannot give the proof from books written two or three millenniums ago, nor a phrase of which you cannot find the original or its near relative, in the same source. Novelty or individuality are the high roads to disappointment and disgrace. I believe it is a fact that a scholar who once ventured upon a different interpretation of some of the classics than that contained in the standard commentaries, was beheaded for his pains, and is to-day regarded with opprobrium by all right-minded students.

By the time a pupil is about eighteen years old he is able to go up to his first examination, although no limit as regard age is affixed to any of the official examinations. The hours spent in preparation for this first trial have been increasing year by year, until probably he has become accustomed to working from day break to midnight without any cessation except for meals, and absolutely without any exercise or recreation whatever. That such is the case may be judged from the fact that, among the models held before the ambitious gaze of the youthful aspirant are the example of devoted scholars, one of whom gathered the snow together in winter that he might read deep into the night with the aid of the light reflected from its surface, while another, equally poor, enclosed innumerable quantities of the fire-fly in a silken net in order to study with the light afforded by their phosphorescent flickering. The first examination is held in the office of the district magistrate, after the candidate has passed which allowed two months to elapse, he passes on to another examination held in a provincial town, of which there are some eight to twelve in each province. If successful here, and it is unusual to pluck any of these preliminary examinations, the candidate enters for his first degree in an examination held twice in every three years, and conducted by an Imperial commissioner from Pekin. Here, if successful he attains a rank that is estimated by foreigners as equivalent to our B.A.; in Chinese he is said to be a *siu-tsay*, or in other words, "A cultivated talent." Upon the truth of this opinions may differ; he receives, however, a special button for his cap—somewhat similar to a graduate in England being privileged to wear a special hood to his gown,—he is exempted from corporal punishment, and if he reside in a village, obtains a little notoriety for himself. By becoming a B.A., the successful student is said to have "entered the Guild of Learning," and now takes rank as a scholar. These and the graduates of higher rank, are the men who form the *literati* of the country, whose antipathy towards foreigners and power of disturbing the peace are so violent, and often so cruelly manifested. In Chinese they are called as a class "Book Readers," but it is to be feared they do a great deal else besides reading books, and, like the clerks of many other countries and of all ages, are often prime movers in fomenting disturbances among the more peaceably disposed populace.

The cost of obtaining the first degree. I am told, is at least £20, and this is apart from all previous expenses incurred by tuition, cost of books, &c. No emolument follows success at this stage, but once in every three years a more important examination is held at the capital of each province. This is open only to those who are already B. A., and not even to all of these, for local examinations of the graduates of the first degree are held repeatedly, and only the successful candidates in these local examinations are allowed to compete for the higher degree. These triennial examinations in the provincial capital are sources of immense excitement to the friends of the candidates, and the results are made known by the swiftest courier, in every hamlet throughout the province, within a very few hours or days of the official announcement. Success here confers the degree of M.A., and the graduate is called a "*Kü-jin*," or "A promoted man." As yet, however, his promotion brings him no reward for his diligence, beyond the honour conferred by successs, although the expenses necessary to obtain this higher degree are estimated to a cost of £40, an enormous sum to men who consider £2 a month a satisfactory income. The money for all these examinations is raised by a voluntary contribution of friends—who feel promoted themselves by the success of a relative—or by incurring heavy debts which often remain unpaid to the end of life.

It is difficult to estimate what is the average proportion of successful candidates; and the average, moreover varies for different provinces. Only a limited number is allowed to pass, and the number for each province is a constant quantity. In this province of Kiangsu, which is the most densely populated of any of the provinces in China, there are generally 2,000 or 4,000 candidates for the B. A. I am told, not more than one-tenth succeed. For the intermediate examination of graduates 80 out of every 300 are usually selected to go to Nankin, the capital of this province, to compete for the higher degree. Nankin is the place of examination for the adjoining province, as well as for this one, and the number of students assembling there at the triennial examination is estimated at from 10,000, to 18,000, of which only one in a hundred can hope to be successful. In the province of Canton, Dr. Williams states that there about 12,000 who hold the first degree, and he mentions the number who enter for their M. A. as usually about, 6,000. The size of an examination hall in China can be imagined when it is remembered that a separate cell is provided for the accommodation of each student.

If not deterred by expenses, and if anxious for official employment, those who have obtained their Master's degree proceed the year after to Pekin, where candidates from all the 18 provinces are examined, about one in twenty of whom succeed in obtaining their doctorate and are called "entered scholars." There are about 200 such successful ones every three years. These remain in Pekin, and are again examined in the Imperial palace and of the successful ones the first takes precedence as first scholar of the Empire for that year, while the rest obtain the degree or office of *Hanlin*, which has been designated the Imperial Academy, and the members of which receive salaries. Other examinations follow, by which still higher promotion takes place, and the official rank of the members of the various Governmental Boards is determined. Thus the way is open by a series of steps for the lowest of the people to rise to the highest official appointment, and to obtain the greatest emoluments in the Empire. None but actors or their children, the lowest grade of coolies, public executioners and torturers, and the children of openly immoral people, are prevented from competing in any of the examinations; and it frequently happens that a man of very low birth fiinds himself suddenly elevated to wealth and honour by the fortunate success of a clever son. But ability is not the only test in these examinations. Purity is unknown, except in sentiment, and it is to feared bribery is carried on here as in every direction. Chance, too, has much to do with success. Where so large a proportion necessarily fail in every examination, and where the candidates are counted by the thousand, it cannot but be that much depends upon what goes by the name of good luck. Many try for years without succeeding, and in the examination

halls of China, as in that of the London University, it is no unusual sight to see grey-haired and aged men making their last efforts to win success before they die.

The honour paid to a successful candidate is astonishing. I happened, while at Soochow, to be living opposite the residence of the father of the student who was first in that year's tripos. The house was an unpretentious one, and the father by no means a wealthy man; but directly the announcement was made of his son's success, all the Mandarins of the city, including, I believe, the Viceroy of the province, came in their chairs of state and paid their respects to the aged sire. Workmen were appointed by the city magistrate to restore and decorate his house, and the expenses were met from the public funds. In China (always the reverse of other lands) honour is transmitted upwards to one's ancestors, not downward to one's posterity; and so on an appointed day an imposing procession was formed, in which the mother of the lucky scholar occupied the principal place, and thus the city was traversed with music and banners, and other insignia of state. Nor did the honour stop here; for days and weeks presents flowed in from all parts, and feasts were given in succession, all testifying to the respect felt by the Chinese for literary ability.

The question arises: What can be shown as the result of this prolonged study, and of so many examinations? From what has been said it is hardly needful to state that a Chinese scholar, however clever he may be, possesses scarcely any information on the most ordinary topics. Of geography, history, figures, he knows next to nothing; of the history and uses of the commonest objects around him, or of the structure and functions of his body, he is absolutely ignorant. Not many days ago, I was asked by a graduate, if sugar was not dug out of the earth like a mineral; and I do not suppose there is a scholar in the country (unless he has been specially taught the use of the abacus) who could work the simplest sum in multiplication or division. The synchronism between high tides and the new or the full moon has been noticed, but no one has ventured to suggest any dependence of the one upon the other. The extent of a scholar's information upon other subjects leads him to suppose that the earth is held in its place by an intangible substance, called *chi;* and the idea that China is the central kingdom of the world, all other countries being ranged round as though tributary and dependent, is too firmly embedded in the popular mind to be easily eradicated. Though the information imparted by the present mode of education is so slender, it seems that the training does, nevertheless, develop a high standard of intelligence. The only need is to direct it to useful objects. The memory, as can be readily supposed, is strengthened out of all proportion to the other faculties of the mind. Nothing is more astonishing than the retentive power of a Chinese scholar. Open any of the leading classics and read half a dozen words, and he will take up the sentence and go on repeating the following paragraphs word for word. No matter what passage be read, he will be almost sure to tell you where it is taken from, and what is its context, almost instantaneously. Reading the Chinese classics with a teacher, it is quite common for him to sit with no book before him; but if a word be missed, or a character be mistaken, he will correct him without a moment's hesitation. Once, when speaking to him of his memory, he laughed and said, "That is nothing. I can say it backwards," and lo! he began at the end of the chapter and proceeded to repeat it backwards. So, too, in the case of our native preachers: many of them are walking concordances. Mention an incident in the Gospels, and they can in most cases tell the book and the chapter, in a way that is marvellous to a foreigner accustomed to the use of a "Cruden" or other similar aid. Owing to this systen of education the mind is not symmetrically trained, and the inventive and æsthetic sides seem to be especially repressed. It has generally been supposed that the great stimulus to literary pursuits is a desire of obtaining office and wealth; but this may well be called in question when the small proportion of scholars who reap such benefit from their learning is remembered. Except in the case of those who are in office, a a scholar is generally poôr, and indeed he is unfitted by his training from earning a livelihood, save the precarious one of teaching or doctoring, while the dignity of his position is such as to forbid his ever turning to business. This fact accounts in a measure for the immense number of schools that exist throughout the empire, and which renders so unnecessary any such system as that recently adopted in England.

Such, in briefest outline, is the mode of education that prevails in this most paradoxical of all nations. It has the recommendation of age, for in many of its main features it has existed for nearly twelve centuries; but, like a great many ancient things, it is losing its flavour. That the benefits of education are more widely diffused throughout China than Europe, is almost certainly not the case; but no such statistics have been collected as to render an opinion trustworthy. Such as it is, its work is done, and its end is doomed. The demands of the Government for men with a scientific education, and the heavy pressure that is being exerted all along the line of Chinese habits and beliefs, are slowly but inevitably breaking up the solidified institutions and customs of the past. Whether the nation contains elements capable of reconstruction and renewal, is a question impossible as yet to answer; but one thing is certain, that China as it has been—the China we know and see to day—will soon be no longer in existence, and its present form will then be regarded only as a wondrous monument of the past.—(*Argonaut.*)

Object-Lesson Teaching at the Centennial.

The necessity of object teaching is now an acknowledged fact. It has been demonstrated that the future progress of our country and the advancement of commerce are dependent upon the progress of science. At the first Universal Exhibition, in 1851, British manufacturers were surprised to find competitors from other nations exhibiting goods superior to their own, belonging to a class of which hitherto they had been proud as a nation. They did not despair, but to overcome the difficulty they established schools of art and design, and offered reward for the best method of teaching practical science. What England did, we require to do. We must make science more popular with our youth It must be simplified, so as to call forth the observant faculty of very young children. They will eventually develop the perceptive faculties and investigating energies of our youth as they grow up, and make them practical people. We, of course, consider the whole Exhibition one huge object-lesson, from which we shall acquire practical information which is worth to this country wealth untold. It is impossible to estimate the value this comparison of the productions of different countries will prove even to our own community. We can compare the artistic designs and the fine workmanship so skillfully executed by the artisans of different

nations. It behoves us, however, to do something more than this. We must provide the requisites for the advancement of our children, not only that they may keep pace with, but, if possible, take precedence in the future. We have carefully examined the various educational exhibits to ascertain what our educationalists are doing in this respect, and are to pleased to find that many of our States have adopted the Kindergarten system for very young children; but that seems to be the extent of their object teachings. The country that exhibits the finest collection of educational appliance for this important branch of education is Ontario. The exhibits of the Canadian School-apparatus Manufacturing Company, of Toronto, in the Ontario education department in the Main Building, have received the international judges' award for their excellence and cheapness. The system adopted by them to teach natural history is acknowledged to be superior to the old, dry method by books and charts; instead thereof they teach from nature. For example, take botany:—They have cabinets containing the raw and manufactured material, from which the child is gradually brought to understand the nature and uses of the plant examined. Supposing the object to be wheat, specimens of the seed, bran, flour, biscuit, macaroni, straw, straw plait, straw paper, &c., are exhibited, and, as they are properly classified, they not only are useful to teach young children the importance of common things, but they impart an important lesson in botany. These cabinets, containing, on the average 200 specimens illustrative of the animal, vegetable, and mineral kingdoms, are sold at $12 each. The models exhibited by the company for teaching physiology and anatomy are superb. More information can be gained of the true position and the formation of the organs of circulation and respiration, the necessity of cleanliness, the importance of attention to the teeth, &c., by studying these models for a few hours than can be obtained from books in years of close study. Their system of teaching chemistry, too, is considered by experts to be very superior. This science is so simplified that children can perform experiments. They have a laboratory for boys and girls—price, $2 containing chemicals and apparatus to perform over 120 experiments in chemistry, manufactures, domestic economy, physiology, &c. Students' laboratories are supplied at $6 each, with a book, to perform 200 experiments. The laboratories for teachers and normal-school students, price $12 each, are marvels of cheapness. They contain all the chemicals and apparatus to perform the ordinary experiments with the metalloids as found in elementary books on chemistry. We have no doubt that this important branch of study, which is the keystone to our manufactures, will receive an impetus and become one of the necessary studies in our school system, as we understand several of our neighboring States have already ordered samples of these laboratories for the purpose of introducing them into their schools. We wish the Canadian School Apparatus Company success in their new enterprise, and shall be glad if they consent to the wishes of some of our prominent educationalists by establishing a manufactory in the United States.—*Philadelphia Press*

The Science of Teaching.

The *Spectator*, (*London, England*,) has the following sensible remarks on the Science of Teaching:—

It is remarkable that "Pädagogik," or the Science of Teaching, has never yet been thought worthy in this country of formal recognition as a subject of academic instruction. The lawyer is presumed to study the principles of jurisprudence, and the medical student to learn anatomy and therapeutics; provision is made in universities and colleges for professional instruction of this kind, and even for those prelections on theology and pastoral work which are presumably necessary for the skilled minister of religion. But for the special aid of one who is to devote himself to the profession of school-keeping, no provision whatever has yet been furnished by the universities. There is among scholars a vague impression that teaching is not a science to be studied, nor an art to be learned by systematic practice, but a knack, which comes easily to men and women who know their subject, and are in earnest in their wish to teach it. Given a well-instructed master, a good text-book, and an obedient pupil, and the teaching apparatus is presumed to be complete. Yet all experience proves that the possession of knowledge is no guarantee whatever for the power to impart it; and that there is the same difference between the skilled and the unskilled teacher, as between the trained and the untrained practitioner of any other art. Much, undoubtedly, of this difference comes from temperament and natural aptitude, from the intellectual and moral sympathy which enables some men and women to know what is going on in the interior of a child's mind, and to adapt their instruction in accordance with such knowledge. No mere study of methods will ever place one who lacks these finer instincts on a level with one who possesses them. Nevertheless, there are right ways and wrong ways of presenting truth; there are principles underlying every rule of practice which a good teacher adopts, and the investigation of them is not without great value. To the average schoolmaster such knowledge is indispensable, as a means of saving him from mistakes and enabling him to economise his resources. And even of one who is exceptionally qualified by natural insight and by a love of his work, it may be safely said that his work will be done better—as all the work of life is done better—in proportion to the thought and study which have been devoted to it, and to the degree in which he has laid hold of the reasons which make one course of action wiser and more practically efficient than another.

In the sphere of primary education, this principle has been generally recognised, and the recognition of it has been attended with the happiest results. The training college system, the creation of the last thirty years, was partly founded and almost wholly sustained and developed by the operation of the Education Department of the Privy Council. It has been practically limited in its operations to the teachers of schools for the poor under Government inspection. Yet within that range its results have been very remarkable. The class of agents whom it has employed was not the most promising. The early advantages, the knowledge of the world, and the general culture of the certificated teacher, have—as is well known—been comparatively small. He has, however, proved himself to be a most valuable public servant. His knowledge may not be extensive, but what he knows he can teach; and he has acquired the art of organising and managing a school, and of giving certain useful instruction to the largest number of scholars in the shortest possible time. No one who has had opportunities of comparing the elementary schools of the present with those of the past can fail to perceive the enormous difference between them; nor to doubt that in the trained and certificated teacher we have a highly efficient instrument, whose efficiency is mainly due to the systematic study of the art and science of his profession.

Why, *mutatis mutandis*, the same experience should not be found to prevail in the region of secondary and higher education,it is difficult to understand. Relatively to the work he has to do, the teacher of Latin, of mathematics, or of science, would find that a knowledge of the best rules of practice which experience can furnish, and of the principles and reasons which justify these rules, would be just as helpful as to the teacher in a national school. Many of the traditional methods in use in grammar, collegiate, and private schools are utterly indefensible ; they are wearisome and clumsy, they deaden the intellectual activity of the scholar, and they terribly waste his time. The due co-ordination and relative importance of subjects are matters on which the minds of few schoolmasters seem to have been exercised ; it is generally considered enough if each teacher, whether at the head of the school or in the position of a subordinate, knows the particular matter on which his own lessons are given. And inasmuch as the preparation to be had from a training college has hitherto belonged to the lower class of teachers, who, both in scholarship and in social position, are presumably inferior to the teachers of secondary schools, it has come to be considered by the latter that they could not, without loss of caste, submit to the same discipline. Fashions seldom extend upwards, and it is in every way a misfortune for the teacher's profession that the practice of systematic training has begun at its lower end, and is still popularly supposed to be appropriate rather for primary than for secondary schools.

The true corrective for this, is to recognise the need for such training as part of the curriculum of instruction for men who are proceeding to a University degree, and are intending to take upon themselves the office of teacher in higher schools. And the Bell Trustees deserve the thanks of the public for thus establishing for the first time a professorship of Education, and in connection with the studies of a university. Professor Laurie urges with truth that " a specialist training college does not answer the same purposes as a university. The broader culture, the freer air, the higher aims of the latter give to it an educational influence which specialist colleges can never exercise." And he proceeds, with great clearness and force, to show what are the points of contact between a true science of education, and psychology, physiology, and sociology : and how the materials of its teaching must be drawn not only from the practice of the school-room, but from philosophy and from the rich domain of history.

It would be easy for a Professor of Education to err on the side of over-speculation and of subtleties about mental processes, and thus to " find no end, in wandering mazes lost," and to forget that though education is undoubtedly a science, it is yet in a still more important sense, an art. And in a professorial chair in Edinburgh or St. Andrew's, the English teacher, who, as a rule, distrusts all theories, will be apt to suspect the prevalence of this fault. In the hands, however, of two men, each so differently and yet so fully equipped for his work by long and varied experience of schools as Mr. Laurie of Edinburgh, and Mr. Meiklejohn of St. Andrews, we have some right to hope that the practical bearings of the pedagogic science on the actual work of the schoolroom will not be lost sight of. Meanwhile, any help which may come from Scotland towards the solution of this serious practical problem will be thankfully welcomed by the more thoughtful of the schoolmasters and mistresses in this part of the island. A grave responsability—of which indeed Mr. Laurie, for his own part, appears fully conscious—rests upon the first adventurers into this new and difficult field of academic work. Their success would go far to remove from the teacher's profession the reproach of empiricism, and would perhaps in time even reconcile the English pedagogue to a wholesome innovation of a like kind in the Universities of Oxford and Cambridge themselves

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The Press on Education

TONE.

A good discipline being established, there is nothing more important to the well-appearing of your school than the *tone of voice* with which the recitations, etc., are rendered. It is absolutely astonishing how much more the upper notes of the gamut are in requisition by the pupil than the lower ! Should you ask a question of any one, the voice is low in answer, perhaps impressing you with its quality of sweetness rather than otherwise. But its naturalness all disappears the minute the class is up for recitation, and in its place the most disagreeable artificial tone that can be imagined. How they manage to drift into such is really a matter of wonder It is to be noticed from the lowest grade of the primary up through all, till they become ashamed of it, and then it all has has to be unlearned. Now the teacher is almost entirely to blame if his artificial manner become a fixed habit for it, as well as many other unpleasant things, is nothing *but* habit ; there is nothing about it natural or necessary. When George McDonald was here, it was my great pleasure to listen to his lectures, and truly his voice was a marvel of sweetness ; rich and melodious with no harshness, it flowed like a rippling brook, rounded and pure in liquid tones. I remember that, during one of the lectures, he leaned over the desk, and, looked upon an audience he would have been proud to know personally for its quality, he pleaded, very impressively, with them, especially the younger portion, to cultivate the *tone of the voice*, saying that that, more than any other accomplishment, " told " marvellously. I wonder what he would say concerning it, if he should enter one of our lower schools ! It would be worth your while to make a point of watching the countenances of your children as they receive, and get ready to reply to, your questions, Mind you, the question must concern some *study*, for the instant you ask any other the *tone* is al right ! First, the shoulders spring up ; the head takes another poise ; the forehead contracts, and in many cases shows more wrinkles than the grandfather's ; the eyes shut nearly together ; the mouth opens, and then, forth from the cavernous depths there pours a sound which, a million times repeated, would absolutely make the nations tremble ; the body, the while, swaying like a reed in the wind from the mere force of the effort ! I have caught myself wondering if the shout that razed Jericho was raised (?) in this manner !

Some time since, during one of Prof. L. W. Mason's valuable talks on music, he illustrated upon the black board the pitch of the voice and the varied tones used in spelling the word " thunder, " for instance, and it was perfect ; one could hardly keep from laughing as he looked at the scale and recognised the truth of the assertion. It seems to make no difference at all what the class exercise is ; each and every one is rendered in about the same way, and if you take no notice of it, the voice rises higher and higher in the scale till there is no knowing where it would go to if the word or sentence did not come to an end. It is curious, too, to

note the *inflection* of voice in various schools. I knew one, not long ago, where every boy ended every sentence he uttered (excepting only the reading lesson,) and every answer to every question, with the *rising* inflection ; and what is more curious still, the habit was exclusive to that school, though it was only one of many, and the children of all always mixed together at play. Another very peculiar habit is the ending of an answer in the *minor* key, rather than coming down fair and square in the *major*. In music the *minor* is very sweet and impressive, filling the soul full of tender thrills ; but when it comes to a wide-awake recitation, where you want the knowledge, and the expression of it, clear and determined, there is no merit in it ; it savours of weakness and indecision. I wish it were possible to give an illustration of sounds in words, but as I cannot, I would like to ask you to pronounce any word of two syllables, pitching one syllable on *do* and the other on *la* of the key of *A sharp*, and you will get at my meaning.

Give out tables in arithmetic, and it is next to impossible to induce a conversational tone ; but stop a child in the midst of it, and ask him the same question, instantly his voice descends in the gamut the number of tones requisite to put it it on a par with your own, and his answer is everything you could wish as to quality of sound—gentle and smooth, but manifestly arriving at it at the expense of a good deal of breath stocked up for his effort ! But that accomplished, at it he goes again, and this time the contrast is the greater, because you have had a glimpse of what he is capable of ! Of course, this is coloured somewhat highly, but it has to be so to arrest the attention, though all will bear me out in the main facts. It is all wrong, and there are many reasons why. Even if it were agreeable and pleasant to the teacher,—which the saints forbid ! for I should dislike much to find one whose ear is so attuned to harsh sounds that she is thus satisfied—it is injurious to the child ; the voice is really injured in its quality by the artificial strain upon it ; the delicate organs of the throat are not made for such a use, and it wouldn't be too much to suggest that this laborious and unnatural exertion has something to do with the throat difficulties and affections to which all school children are so liable. But even if it does no real harm even if the teacher is indifferent to it as far as she herself is concerned ; and even if the children like it better themselves, which I can't belive, notwithstanding it is so universal, it is yet detrimental to the school *as a school* ; it makes things look as if they ran as in ruts, —as if it was the same thing over and over again all the time, and as as if there neither was nor could be any progress. Now, as this is the age of progress, an improvement in this direction is very much to be desired and hoped for. The voice should not be raised so fearfully beyond its natural inclinations ; and, while I do not indorse low and guttural utterances, I do not believe in shouting. A child's voice has not the power or strength of an elder person's ; it is finer, more like the vibrations of a silver thread, and to try to give it maturity before nature herself intends it, is wrong ; it is unphysiological and vitally harmful. One of the prettiest features of a class in singing is softness, thus bringing out the sweetness of the young voices. There cannot be purity of tone when the organs are all stretched out in the throat, wide open for a stentorian shout. Fatigue will ensue much more quickly in this state of things, and then you will wonder what makes your little fellows seem so tired. Their out-of-door shouts belong to another order, but do not let them be transferred to the schoolroom. There is a fitness in things, and the schoolroom in eminently the place for gentle words and sweet, pure tones. How culpable we all are in this respect ! I believe much of this is engendered by frequent concert exercises ; it is so easy to drift into a sing-song, where many voices are united, each unconsciously attempting to attune itself to every other. Such are valuable for many things, but too much of even a valuable exercise is detrimental. Let the recitations, as far as may be consistent, be conversational, and insist upon all answers being given as *naturally* as possible. That this is a task, I know full well, for I have two or three whom I can scarcely ever make put the voice down at a period without calling the child's immediate attention to myself, and indicating the downward inflection by a motion of my head and hand. There is a theory in all this, but, it is not all theory ; the practice is possible, and if each teacher would attend systematically to the quality of the tone with which the little ones answer *all* questions, whether in spelling, numbers, or conversation, as they advance up through the grades, this harshness and unnaturalness will become less and less a noticeable feature.—*New England Journal of Education.*

Girls at School.

Take the case of a girl of fifteen, conscientious and anxious to improve herself. She rises long before it is light in the morning, before, perhaps, even the early hour appointed. She struggles with a feeling of oppression and languor occasioned by sleeping in the same room with several other girls, and breathing all night a vitiated atmosphere. The gas in the room does not improve the state of the air, and there are no ventilators ; perhaps even the register of the grate is shut. In all probability there are not adequate tubbing arrangements ; certainly no hot water is allowed. The poor victim breaks the ice in her jug, and uses as small a quantity as possible of the hard water. It is not improbable she has inflamed chiblains, which have kept her awake during half of the night. Hungry, sleepy, and languid, she begins her piano practice in a room without a fire. At the end of an hour she is stupid with cold and has a violent headache. There is no use in complaining, for several of her companions are in a similar condition, and they sit down to breakfast shivering in the dreary gray dawn. After breakfast comes the monotonous half hour walk which is supposed to be good for the health, but seems only to have the result of fatiguing the children before their day's work has well begun. Then comes a long morning, in which class succeeds class with scarcely any intermission Latin, French, German, music, drawing, have all to be squeezed in as well as the other lessons which belong to a good English education. These of themselves would be enough to fill up the whole time. After an early dinner, if the day is fine, there is an other dreary stroll ; but everyone rejoices if the weather is wet, for then there is a little time for idleness or play. The classes begin again in the afternoon and last until tea-time ; perhaps, even after that, the preparation for the next day must be got through. If there is no hour before bedtime in which relaxation is insisted on, the industrious girls will work up to the last moment, and then dream half the night of unprepared lessons or problems they cannot solve. Their feverish restlessness is the natural result of overstraining young brains, and not giving the muscles vigorous, healthy exercise. Not that much is accomplished after all in the way of learning ; far from it ;

and, worst of all, they are never taught how to learn. The time given to lessons is too long to be advantageously employed. It is impossible that it can be good for either the mind or body of a growing girl to spend nine or ten hours a day in head work, particularly when the greater part of the time is passed in an overcrowded, stuffy school room. Boys have a great advantage over girls in this respect. Their class rooms are much larger, more numerous, and better ventilated. They are not hung with curtains, or covered with carpets which can scarcely be kept free from dust. Then, too, boys have another advantage over girls in the liberty they enjoy during play hours. They are not constantly under inspection. Their games of cricket and football are admirable tonics after a morning of hard work. The healthy glow of exercise sends a fresh current through the tired brain, and completely changes the course of their thoughts. But of this invigorating sensation the properly brought up school girl knows nothing. She is not allowed to warm her feet by a good run or her hands by a boxing-match. The nearest approach she ever gets to healthy exertion is the weekly dancing lesson. If she is allowed to have riding lessons they are not of much use, for she is probably obliged to work after hours to make up for the lost time. There is certainly no care taken that she shall have something to eat and half an hour's quiet when she returns home tired after her canter. Instead of resting her back she is perhaps doomed to an hour of singing, and receives a scolding for not being in good voice. The culpable negligence with regard to the health of the girls in most boarding schools cannot be too severely censured. There is plenty of care and attention forthcoming when once the doctor has to be called in and he pronounces his patient really ill; but then it is often too late to do much. The seeds of future incurable delicacy are laid in many cases from want of a little timely thought, for which no after kindness can compensate. Few schoolmistresses have any real knowledge of physiology or of the laws of health, and yet no woman is qualified to have the care of young people who is not intimately acquainted with the general functions of the human body and with the best means by which to keep them in good working order. She should know how to distinguish between irritability and indigestion, and between idleness and illness. Childish complaints which under favorable circumstances might not be serious often become severe illnesses because no one has sense to observe the symptoms which any rational person would recognize as the precursors of some feverish disorder.

The severity of an attack of measles or scarlatina often depends on the care taken of the patient while it is incubating. A walk in the wet or a sleepless night from overwork may induce symptoms for which there is no care. Then, too, the mind requires as much care as the body. It is quite possible to wear out brain power by over-stimulation, and the clever girl who carries off a number of prizes may fade into an ignorant commonplace woman who lies all day on the sofa reading novels, and is unable to sleep without chloral. With regard to the intellectual education given to half the girls in the boarding schools, it is not too much to say that it is worse than none, for the reason that it disgusts the children with learning. This is of all others the one to be avoided. The compulsory lessons learnt at school ought only to be the scaffolding for future building up. That the term "finished" should be used of a girl of 17 shows the hollowness of the system, and proves that the people have, as a rule, no idea of what education means, and that they never reflect whether the number of things usually taught can be taught properly in the time given. To insist that children shall not talk anything but French does not mean that they learn to converse in French. It simply means that they are allowed to jabber a *patois* in which gender and grammar are set at defiance, and in which mongrel words are coined in every sentence to save trouble. It means that any amount of silly talk may be carried on if partly expressed in a foreign language. It means that English conversation on sensible subjects is unknown and uncared for. There is no attempt made at meals by the presiding schoolmistress to interest the girls in the topics of the day. They never see a news-paper, nor are they encouraged to supplement the ancient history with which they are so plentifully crammed with some knowledge of the political events going on around them. All that is required of them is to be able to remember correctly a few hundred dates, many of them quite un-important, and to commit to memory the incorrect statistics of killed and wounded in certain famous battles. They scarcely know who is the Prime Minister: have not the foggiest idea as to how their own country is governed; do not understand the meaning of such words as Poor Law, Consols, Trade Unions, Income Tax, Disestablishment, Home Rule. A girl may be able to say by rote all the rivers of Europe, and yet not to give the faintest sketch of the changes which the great European wars have made in the divisions of the several contries, not even of what France lost by its campaign with Germany. She may have learnt to play with tolerable brilliancy, and yet not be able to give even a slight sketch of the difference between the music of Mozart and Beethoven, or of Rossini and Wagner. She may have arrived at compound fractions in her arithmetic studies, and yet be incompetent to keep an ordinary house account book or to make quickly a simple mental calculation. The sort of knowledge gained by cramming is painfully evanescent. It melts away with want of use, leaving nothing whatever behind. To retain for any length of time precise information on any subject requires a keen interest to have been aroused in the learner, and this is the last thing usually aimed at by school teachers.—*Saturday Review.*

The Art of Deception.

One of the most singular inconsistencies to be observed in everyday life is found in the different manner in which the habit of deception is regarded according to the age and position of those who practice it. Children, as soon as they become capable of distinguishing right and wrong, are taught to look upon deceit as one of the worst sins that can be committed. Boys at school are not only taught the beauty of truth by their masters, but, in a certain rough fashion reverence it among themselves. A boy, for instance, who parades ostentatiously to his master an assumed steadiness of principle and submissiveness of demeanour is very soon branded with the odious title of sneak. On the other hand, occasions arise in schoolboy life when by sticking to a deliberate falsehood, a boy may gain for himself the reputation of a hero among his fellows. This, however, is a detail of the curious system of school-boy morality, the unwritten laws of which might afford an interesting matter for study. Girls, it would seem, are more inclined to untruthfulness than boys; but this inclination is really very often the result of moral cowardice, a defect which may be said to be as common to boys and men as to girls and women. But in the one case there are deterrent influences, absent in the other,

which often lead to the attempt at over-coming or at any rate concealing this fault. A boy who has invented a story to save himself from a scrape, and is found out, is generally made to feel in some tangible way that he has been guilty of a gross blunder, if not of a crime. He becomes conscious that his conduct has gained him nothing but a punishment and the scorn of the community. With girls the matter in somewhat different; some form of punishment may be inflicted, but the sense of having done a shameful thing is less frequently and less strongly inculcated. A girl who has been detected in a falsehood may be teased on the subject by her companions, but she will not be shunned or despised. Thus she is very likely to learn in early life the great maxim that it is not crime but detection she ought to avoid. Among a certain class of grown up women there is little more disgrace attached to untruthfulness than among girls; and this it must be said is to a great extent the fault of the men, who so diligently assure women that they are by nature untruthful, that it is small wonder if they end by believing the assertion and acting upon it. It also occurs that certain women who have cultivated a love for truth become disgusted at the general weakness of their sex in this respect, and fly in consequence to the opposite extreme. They judge it necessary to employ some striking means for convincing the world that they are not as other women are, and that whatever they say is trustworthy, and they therefore affect an irritating sharpness of manner and an uncomfortable habit of saying the most disagreeble things they can. In order to avoid flattery they overwhelm one with bitter criticism. Perhaps they are however more tolerable, inasmuch as they act from principle, than the women in the world who are accomplished in the art of deception, and employ all its resources to wound anyone against whom they have a grudge. Their words are to those of a woman who flaunts her truthfulness in one's face as the bite of a snake to the chance blow of a bludgeon. Both, however, may be said to be results, in opposite directions of the same system The dangerous woman probably in the matter of untruth is she who, with a frank manner, a pleasant smile, and the honest appearance of Iago, will look you full in the face and tell you what she knows to be a deliberate lie. And such people are commoner than may be supposed, inasmuch as the fallacy that a person skilled in the art of deception cannot look others in the face is still very generally entertained, although it has been often enough exposed.

—From the *Saturday Review*.

Teachers.

Teachers, in common with persons in the ordinary walk of life, are, more or less, under the control of habits that exert a powerful influence upon their daily work. In the school room, we know of none more pernicious than the habit of scolding. It is often the result of nervousness, and an irritable condition of both mind and body. Any one weary is often easily annoyed at the most trivial causes, and naturally more liable to commence finding fault with those who are within their reach.

It is astonishing how soon a teacher who indulges in scolding at all becomes addicted to it, and confirmed in it. It is a habit easily formed, and is as unreasoning as it is unreasonable. If is influenced only the person indulging in the disagreeable flow of irritating words, it would be less obnoxious; but it is a contagious habit. Once introduced into the school room by the teacher, and it is pretty certain to effect all the members of the school. The rumbling of distant thunder, catervaulings or a discordant hand-organ under one's window grinding out harmonious sounds, are pleasant experiences compared with the habitual scoldings of a teacher, confirmed in the use of words that grate harshly upon the ears of the pupils. We regret to say that many otherwise excellent teachers of our schools, are victims of this disturbing habit. We think, also, that ladies contract the habit more frequently than gentlemen, in the school room. This may be because they live more within-doors, and are more subject to the effects of over-heated and vitiated atmosphere, which is trying to the nervous system and impairs the healthy condition of the body, and destroys the cheerful and lively tone of the mind. Possibly their natures are more delicate and susceptible, and their sensitiveness more easily wounded, than the other sex. We remember that the poets often sing of woman as "divine;" but no stretch of poetic fancy or soaring of the imagination, could convince us that there was much of *real* divinity in a lady teacher who was habitually addicted to the habit of scolding as a governing force in the school room. But our courage fails us, aed we will say no more, lest some "fair one" should ferret out our editorial retreat, and scold us for what we say about scolding ins chool.

—*New England Journal of Education.*

Confucius.

Confucius was a celebrated Chinese sage, born June 19,551 B. C. His own name was "Kong," but his disciples called him "Kong-fu-tse" (*i. e.* Kong, the master or teacher), which the Jesuit missionnaries Latinized into "Confucies." His mother called him "Kieu" (little hillock,) because he had an unusual elevation on the top of his forehead.

We give some of his wise educational maxims:

1. The cultivation of the person depends on rectifying the mind.

2. The expression,—"As we cut, then file," indicates the work of learning; "As we chisel, and then grind," indicates self-culture.

3. Great learning teaches,—to illustrate illustrious virtue; to renovate the people; and to rest in the highest excellence.

4. Without knowing the force of words, it is impossible to know men.

5. Enrich the people, and what more shall be done—teach them.

6. Learn as if you could not reach your object, and were always fearing, also, lest you should lose it.

7. The scholar may not be without breadth of mind, and vigorous endurance. His burden is heavy and his course is long.

8. There are four things which should be taught,—letters, ethics, devotion of soul, and truthfulness.

9. Be a scholar after the style of the superior man, and not after that of the mean man.

10. To see what is right and not to do it, shows a want of culture.

The grand purpose of school discipline is to train the child for future usefulness; not to secure temporary conformity to a code of regulations. A good school must be drilled to prompt obedience to every word of

command, not merely for the sake of the good order it secures, but because it helps to form correct habits, and brings the silent forces of mental and moral power into submission to the *will* of the child. In this view the child becomes the pioneer of a positive and earnest manhood. Training is definite and practical work, yet with results reaching far into the infinite future. The teacher must lead the way with a calm, steady purpose and yet with a concealed energetic power, born of the double sense of duty and right, which never relinquishes a purpose wisely taken. This hidden power of will, which does not tire with difficulties nor cool with obstacles or delays, is the glorious element of force which governs children in a way that will enable them to govern themselves in after years, amid the trials and temptations of after-life. An eminent writer says, " To reach the port of heaven we must sail some times with the wind, and sometimes against it ; but we must sail, and not drift or lie at anchor."

If there is any sphere of labor requiring absolute and determined purpose, it is that of training children by the exercise of the true governing qualities,—among which we would name steadiness of will, calmness, energy, and endurance. Add to these elements of character a love for the work of training, that begets enthusiasm, and the heart beats quickly under inspiring influence of the great work performed. To " *train*," a child for life's great mission is, indeed, a work of great responsibility.

A few words on Turkey.

Turkey, or the Ottoman Empire, includes large portions of the continents of Europe, Asia, and Africa, and consists of Turkey Proper, which is under the direct rule of the sultan, and of numerous dependent and tributary states, governed by their own princes. Turkey Proper is partly in Europe and partly in Asia, and is divided into a number of provinces, or *eyalets*.

The total area of the empire comprises 1,812.048 square miles, divided as follows :

	AREA	POPULATION.
Turkey in Europe.................	207,438	9.800,000
" " Asia.....................	660,870	16,750,000
" " Africa...................	943,740	600.000
	1,812,048	27,150,000

The states dependent upon Turkey are either subject to hereditary chiefs—as Egypt, Servia, and Montenegro —to elective rulers, or to viceroys appointed by the sultan, and these chiefs, of whatever sort, must on their accession, be approved by the sultan, must acknowledge his suzerainty, and pay tribute ; in all other respects they are on the footing of independent rulers.

Turkey Proper, as the immediate possessions of the sultan are called, is bounded by the Austrian dominions, Roumania, and the Black Sea on the north ; by Persia, the Persian Gulf, and the Arabian Desert on the east ; and by the Red Sea and its outlet, Egypt, the Mediterranean, Greece, the Adriatic Sea, and the Austrian Empire on the south and west.

Turkey in Europe, the smaller of the two divisions of Turkey Proper, is generally hilly and undulating, traversed by a mountain system which has its origin in the Alps, whose eastern extension, the Julian Alps, enters the country at its north-west corner, runs in a south-west direction as the Dinaric Alps, keeping parallel with the coast-line, and after entering Albania, where it becomes Mount Pindus, assumes an almost southerly direction till it reaches the Greek frontier. This range, which forms the water-shed between the Adriatic and Ægean Seas, has its culminating point in Mount Dinara (7,458 feet), and sends out numerous offshoots over Montenegro and Albania.

The great river of Turkey is the Danube, which, with its tributary, the Save, forms the northern boundary, and receives in Turkey the Bosna and Drina from Bosnia, the Morava from Servia, and the Iskra and Osma from Bulgaria. The Maritza, whose basin is formed by the Great Balkan and its two south-eastern branches, and the Struma and Vardar, in Macedonia, are also considerable rivers, but those which are situated to the west of the Dinaric-Pindus range are, from the proximity of that water-shed to the seacoast, insignificant in size.

On the high lands the cold is excessive in winter, owing to the north-east winds, which blow from the bleak and icy steppes of Southern Russia ; and the heat of summer is almost insupportable in the western valleys. Violent climatic change is, on the whole, the rule in European Turkey ; but those districts which are sheltered from the cold winds, as the Albanian valleys, enjoy a comparatively equable temperature. Although the soil is for the most part very fertile, but little progress has been made in the art of agriculture, and the most primitive implements are in common use. The cultivated products are maize in the south ; rice. cotton, rye, barley in the centre, and millet in the north : the natural products are the pine, beech, oak, linden. and ash, with the apple, pear, cherry, apricot in the Danube basin ; the palm, maple, almond, sycamore, walnut, chestnut, carob, box, myrtle, laurel, etc., in the provinces south of the Balkan ; large forests of fir and dine in the north-west ; the olive, orange, citron, vine, peach, plum, and other fruit trees in Albania ; and abundance of roses in the valley of the Maritza. The mineral products are, iron in abundance, argentiferous lead-ore, copper, sulphur, salt, alum, and a little gold, but no coal. The wild animals are the wild boar, bear, wolf, wild dog, civet, chamois, wild ox, and those others which are generally distributed in Europe. The lion was formerly an inhabitant of the Thessalian Mountains.

Turkey in Asia.—This portion of the Turkish Empire is more hilly than the other ; the two almost parallel ranges, Taurus and Anti-Taurus, which are the basis of its mountain system, cover almost the whole of the peninsula of Asia Minor or Anatolia, with their ramifications and offshoots, forming the surface into elevated plateaux, deep valleys, and enclosed plains. From the Taurus chain the Lebanon range proceeds southward parallel to the coast of Syria, and, diminishing in elevation in Palestine, terminates on the Red Sea coast at Sinai. Besides the Euphrates, Tigris, and Orontes, the only important rivers of Turkey in Asia are the Kizil-Ermak, which rises on the borders of Cilicia, and after a devious course across the peninsula, falls into the Black Sea near Samsoun ; the Mæander and Sarabat, which flow to the Ægean Sea ; and the Sakaria, which empties itself into the Euxine. On the whole, Turkey in Asia is ill-supplied with water ; and though the mountain slopes afford abundance of excellent pasture, the plains and many of the valleys, expecially those of the Euphrates, Tigris, and Jordan, are reduced by the parching droughts of summer to the condition of sandy deserts.

The fertile portions produce abundance of wheat, barley, rice, maize, tobacco, hemp, flax, and cotton; the cedar, cypress, and evergreen oak flourish on the mountain slopes; the sycamore and mulberry on the lower hills; and the olive, fig, citron, orage, pomegranate, and vine on the low lands. The mineral products are iron, copper, lead, alum, silver, rock salt, coal (in Syria), and lime-stone. The fauna includes the lion (east of the Euphrates), the hyena, lynx, panther, leopard, buffalo, wild boar, wild ass, bear, wolf, jackal, jerboa, and many others; and the camel and dromedary increase the ordinary list of domestic anémals.

Notwithstanding the primitive state of agriculture in Turkey, the extreme fertility of the soil, which returns from twenty-five fold to one hundred fold, makes ample amends for this defect, and supplies materials for the comparatively unimportant manufactures and industries of the country. The products are wax, raisins, dried figs, olive oil, silks, red cloth, dressed goat-skins, excellent morocco, saddlery, swords of superior quality, shawls, carpets, dyestuffs, embroidery, essential oils, attar of roses, plum brandy, etc. The commerce of Turkey is extensive and important, and under the influence of judicious regulations is rapidly increasing. Detailed statistics are not obtainable. The average annual value of the imports of Turkey in Europe is estimated at $92,500,000; and of the exports at $50,000,000. The exports are the surplus of the above-mentioned natural and manufactured products of the country, also wool, goats' hair, meerchaum clay, honey, sponges, drugs, madder, gall-nuts, various gums and resins, and excellent wines; the imports are manufactured goods of all kinds, glass, pottery, arms, paper, cutlery, steel, amber, etc.

The merchant marine included, in 1873, 224 sailling vessels of a total burden of 34,711 tons, and 9 steamers, aggregating 3,049 tons. The total tonnage of the merchant marine is estimated at 180,000.

The sovereign is commonly styled sultan, but has also the titles *padishah*, grand seignior, *khan*, and *hunkiar*; though nominally absolute, his power is much limited by the *sheikh ul-islam*, the chief of the *ulemas*, who has the power of objecting to any of the sultan's decrees, and frequently possesses more authority over the people than his sovereign. The supreme head of the administration, and the next in rank to the sultan, is the grand vizier (*sadri-azam*), under whom are the members of the cabinet or divan (*menasybi-divaniie*), namely, the presidents of the supreme council of state (*alkiami-adlie*) and of the *tanzimat*, the *seraskier*, the *capudan pasha*, or high-admiral, and the other heads of departments of the administration. The governors of the *caylets*, or provinces, are styled *walis*; each eyalet is divided into *sanjaks* or *livas*, ruled by *kaimakams*, each liva containing a number of *cazas*, or districts, and each caza a number of *nahiyehs*, composed of villages and hamlets.

According to the budget for 1875—6 (the year 1291, according to the Turkish calendar), the estimated public revenue was 4,776,588 purses of 600 piastres each; the expenditure, 5,785,819 purses. The foreign debt of Turkey amounted in 1875 to $924,908,900; the internal and floating bebt has been estimated variously at from $65,000,000 to $150,000,000.

The military forces of Turkey were in 1875 officially estimated as follows: on a peace footing, 157,667 men; on a war footing, 586,100.

The navy consisted at the end of 1875 of 20 iron clad ships and 70 other steamers. In addition to these there were 4 steam transports and a number of old sailling-vessels not fit for service. The total length of railways open for traffic on January 1st, 1875, was 825 English miles, of which 654 were in Europe and 171 in Asia. The length of telegraph lines on the 1st of January, 1875, was 17,597 miles. The total number of despatches carried in the year 1874 was 910,130, of which number 102,987 were international messages.

Education was long neglected, but in 1847 a new system was introduced; and since then schools for elementary instruction have been established throughout Turkey, and middle schools for higher education and colleges for the teaching of medicine, agriculture, naval and military science, etc. In 1870, Constantinople had 415 public schools, which were attended by 24,000 pupils.

Spelling.

How to teach spelling still remains a problem, and learning still remains a task and will to the end. The philologist can hardly undertake a more difficult or more hopeless task than that of reducing English orthography to anything like uniformity and at the same time make it tolerable to the generation or two who will be compelled to know both the present and the reformed ways during the period of transition. However desirable a reformation may be, whether one which shall radically and at once put our orthography on a rational basis, or one which shall be content, at first, with correcting some of the most absurd and anomalous features of the present way of spelling and by the obvious and great relief of these changes reconcile all to further modifications, it must be, in order to either permanence or value, under the direction of men of science and judgment and not in hands of mere authographic mutineers. At any rate, such a reform will not come in haste, and the present generation must learn the current orthography, and the question constantly recurs how to teach it.

Spelling, for the ordinary pupil, cannot be learned *without work* A few seem to spell, as a few seem te read or to sing, by gift of nature, but they are very few. For most, spelling is the result of much study. The irregularities of the language impose this necessity upon very nearly all, and there is at present no escape. We may much prefer to be studying nature or to be studying Algebra; but if we would spell correctly and be sure that our letters and other writing will not disgrace us in this respect, we must pay the cost, we must learn the spelling lesson, and we must practise till we are perfect. The negl ct of this will account for some of the poor spelling prevalent in schools and elsewhere; spelling is not practised to such degree and with such exactness of requirement as to make safe spellers.

Next, spelling, like anything else, is best learned *by children* when special and sole attention is given to it. Spelling, if it be only a part of an exercise, one of several things attended to, will make but slight impression. Here is the cause of failure in result of much teaching of spelling; it is an object-lesson in etymology, and the spelling is not sufficiently separate from other points of apparently—and if spelling is already known of really—greater interest to make any permanent impression; it is a "word-building" lesson, in which words are "built" rather than spelled; attention is divided among several objects and not concentrated on any; in these cases the *spelling* at least suffers. Grown up students may make spelling an incident in a lesson in philology, and may fix this in connection with other lessons; a class in physiology may fix this in connection with other lessons; a class in physiology may have a spelling lesson in the terms of the science, as incidental to physiology; compositions and every written exercise should make spelling an important incident; but children as a rule, and children of quite large growth will learn spelling only by attending to it as *spelling*. A set lesson, in which *spelling* is the only test of merit and is the only thing required, a lesson in which attention is fixed sharply on this one point, is essential for children; they may do all the rest beside, attended to all the accessories and whatever "gets up an interest," and get good from the variety of practice, but this they *must* do.

Next, if spelling is not learned *in early life* it is scarcely ever learned thoroughly. Particularly is this the case with those

whose training in youth neglects this for other things. One beginning his book-education late in life may, if he takes the right course, learn this as well as he learns other subjects, though such a one always labors under the disadvantage of not having learned some things at the time of life in which they are most easily learned. But one who grows up through the grammar or high school with habits of inaccuracy will almost certainly carry them into business, and will reveal them in legal documents or in written sermons. The worst spellers I have known have been grown-up students in higher English and Latin, students whon ever really learned any " common subject. " And they seemed as insensible to the disrepute of such ignorance as they were incorrigible in the practice of it. They had failed in the early drill which teaches and fixes good habits, and they were unwilling to submit themselves to any process which might promise to remedy, in part, their fault, but promised only at a price of labor and perseverance which require a sort of heroism to undertake.

They are good spellers and they only—excepting the very few whom we call *natural* spellers, and they need the same drill though not to the same extent with others—whose attention is called constantly and sharply to the form of words while they are getting their vocabulary and are first coming into contact with written words as signs of ideas. Children now learn words as wholes and then separate them into letters. In this way they very soon learn to recognize in other words, not yet taught to them, the combinations which their eyes and ears first, and then their tongues, have already been made familiar with, and so are constantly reading and spelling ahead of the teacher's lessons. They learn to jump at pronunciation and meaning, and very early in the process of reading and spelling astonish and perplex the teacher by had knowing much more than has been taught. It is not possible, if it were desirable, for the teacher to keep the spelling and analysis and definition lessons, and whatever other lesson it may be the practice to connect with the acquisition of new printed words in the first stages of book learning, abreast with the child's own acquisition of a vocabulary. He will learn words in their use and in their meaning faster than the teacher can possibly furnish them in the usual manner of giving lessons, and he will learn them accurately, so as to know them and so as to reproduce them to the ear or to the eye in reasonably certain opposition to the exactness and accuracy of the attention which he is compelled to exercise on such as form the material of his daily drill. That is, he will speedily and accurately extend his spelling lesson and his pronouncing lesson to words which are similar or analogous to those which his lessons have fixed in his eye and ear. If these organs and his memory are drilled to see, to hear and to remember some words just as they are, he will for himself see and hear and remember many more, and if the drill is kept up long enough he will be a reasonably safe speller: but if this process is not begun early and persevered in rigidly during the first years of school life it is hardly possible that the child will ever learn to spell. The sharp sense and the ready verbal memory of childhood seem to be almost essential to the learning of this art.

On the other hand, those who have been drilled to see correctly the form, and have been accustomed to hear correctly the sounds of words and have at the same time been exercised in making the written form represent the sounds heard, that is, in writting words, will presently form the habit of learning the spelling of every new word, as a matter of course, the forms being accurately noticed as the meaning is for the first time ascertained, and the two being fixed in the mind so that the one shall always suggest the other. This cannot be said of those who have not been carefully drilled in spelling. They are as uncertain and as careless about new words, and words which come to their notice later in life, as of those they first neglected to learn. They can never learn to spell more than they can learn any thing else by *beginning in the middle and going backward.* The form of words can be remembered only by being seen just as they are and seen *on purpose* to be remembered, as the railroad conductor sees his passengers, or as the detective searches the face of a suspected person that he may know whether it answers to the description of the man he wants.

Now a days the almost universal method of spelling lessons is the written. The argument is good and the practice should be in writing. The argument is good and the practice is good. It is possible, however, to overdo this, or rather to neglect another aid. It is true that we need to see a word just as it in order to write it in the same way ourselves; do we not also need to *hear* it just as it is for the same purpose ? If both ear and tongue are accustomed to scrutinize words, and both pencil and eye are habituated to reproduce them, the habit of accuracy may have two points of attachments instead of one. We do not want to make the written spelling less abundant, but the oral a little more so.

What shall the spelling lesson be after children get out of the second or third readers? What shall be the daily *drill?* We can make secondary lessons out of the names of articles sold in a shop, or of the vegetables raised in a garden, or of the parts of a house, or of a taste of etymology, or of a list of all the words which begin with a certain prefix or end with a certain suffix. There are ten chances to one that the teacher does not know any basis on which to build any but the most precarious etymology or word-analysis, he knowing no Latin and less Greek or French or Anglo-Saxon; and there are ten chances to none that the people has no knowledge of such things and will not get it under such teaching.

Spelling books, or set lessons arranged for the daily drill, made up of the " substance of doctrine" in this subject seem to be both a necessity and a convenience. The ordinary teacher will do far better with them than he can do without. Indeed, he will only make a caricature and a blunder of his spelling-lesson if he did not use them. He can make orthographical excursions and spelling picnics with safety, if he has some good guide to call him back when he gets too far away from work and too much engrossed with exercises whose main interest is not founded in spelling, but he needs and would better stick pretty closely to his guide-book and go out on such expeditions or raids as it may suggest and show the way to.

Shall he learn by rule ? If the language would conform to rules, this would solve the question, but it will not till the reform comes. Scarcely any rules, which are not more confusing and misleading than helpful, can be given. Three or four perhaps half a dozen, may be of help, but b yond this they are almost worthless. For example; to determine which of the two letters of the dipthong ei precedes the other, we are told by some that if the preceding consonant have an s-sound, e comes first; this will spell many words and would be a great help but for such bothersome exceptions as *siege, sieve, cuirassier financier*, &c., and if there were not so many words in which e comes first, though the combination is *not* preceded by an s sound: as *foreign, reign, vein, mullein, neigh*, &c. Kerl says: *always c ei*; how then about *deficient, proficient, sufficient, conscience*, not to say *glacier* and *species?* Another says (Westlake) *clous* is the spelling for words which pertain to matter, for all other *cious.* I find no exception to the first half of this rule; but how about *spacious meritricious luscious* and *capacious* in its first meaning ? It can hardly be more than a chance that the rule is as nearly true as it is, and it is only half a rule at best, for its legitimate extension to include another preceding consonant, t, with precisely the same vocal power as c in such cases, puts us at sixes and sevens, as there as many teous-es as tious-es. No principle of orthography is involved and hence no safe and comprehensive rule can be made. A very few rules, however, are of service.

A principle of arrangement of a spelling book may be found in the classes of errors almost universally made. These are the interchange of alphabetical equivalents, double or single consonants, the vowels of obscure or unaccented syllables, and words of similar or nearly similar pronunciation. For example; the child does not know, unless he *knows*—that is, he cannot guess, or determine by any rule—whether to write s or c in the last syllable of supersede and intercede, one g or two g's in maggot and fagot, what vowel to write for the second syllable of separate and origin, and whether to write beach or beech, principal or principle, as detached words, undefined. If he were drilled in miscellaneous collections of words, a rule being thrown in now and then where a really helpful one can be made and a foretaste being offered of the way in which words are made from other words, just enough to suggest that a very inviting field lies not far outside of his spelling lesson, and not neglecting a full collection of phrases containing homophonous words, would he not be taking, about as direct a road to correct orthography as can be found? Thus: if all the words, or a good share of them, containing ei and those containing ie, and those which have two n's or g's and those having only one, and those which double the consonant or drop the final vowel on undergoing some modification, &c., were put together, and were followed by a collection of those which cannot be made to go

together under any general rule or principle, and if it were made up of spelling lessons only, would not the ordinary teacher have a good spelling book ?

But let it be repeated that faithfulness and persistency of drill, on some plan, is essential, and that as a rule, boys and girls who are allowed to spell inaccurately or toneglect it altogether will not spell correctly. The way to learn to spell is *to spell.*

X.

OFFICIAL NOTICES.



Department of Public Instruction.

APPOINTMENTS.

Quebec, 23rd November, 1876.

His Excellency the Lieutenant-Governor has been pleased, by order in council, dated the 1st November instant, to make the following appointments of school commissioners, to wit :

County of Bagot, Saint Théodore d'Acton.—Ambroise Duncan, esquire, *vice* Mr. Louis Robichaud.

County of Ottawa, Buckingham.—Donald Urquhart, esquire, *vice* the late John Higgins.

SCHOOL COMMISSIONERS AND TRUSTEES.

Quebec, 29th November, 1876.

His Excellency the Administrator of the Province has been pleased, by order in council, dated the 25th of November instant, to make the following appointments, to wit :

COMMISSIONERS.

County of Beauharnois, town of Beauharnois.—The Reverend Louis David Charland and Messrs. Louis Raymond Baker, Cyrille Guimond, Eugène S. Manny and John Sullivan.

County of Berthier, saint Michel des Saints.—Jérémie Laporte, esquire, *vice* Charles Bellarmin Brassard, Hilaire Gendron, esquire, *vice* Louis Narcisse Ferland and Japhet Ferland, esquire, *vice* Olivier Hetu.

County of Drummond, Saint Fulgence.—Fulgence Prefontaine, esquire, *vice* the Reverend Thomas Quinn.

County of Hochelaga, Cote St. Paul.—Messrs. Joseph Dun, Peter Jackson, Godfroy Provost, Célestin Lalonde and François Tary.

County of Pontiac, Sainte Elizabeth de Francktown.—Messrs. James Dolleham, Thomas Martin, Morgan Kavanagh, John Sloan and Patrick Quinn.

TRUSTEES.

County of Shefford, Sainte Pudentienne.—Charles Leclaire and Charles B. Smith, esquires.

ERECTIONS AND ANNEXATIONS OF SCHOOL MUNICIPALITIES.

Quebec, 29th November, 1876.

His Excellency the Administrator of the province, has been pleased, in virtue of the powers conferred on him by the 30th clause of chapter 15, of the Consolidated Statutes of Lower Canada.

1. To erect into a distinct school municipality the parish of Saint David, in the county of Levis, with the limits which have been assigned to it for civil and rural purposes, on the 14th of February last (1876), to wit : On the west from the summit of the Cape the line between the lands of François Bourrassa and Benjamin Lemieux as far as the depth of the first range of the said parish, a distance of forty two arpents ; thence following the said line a length of ten arpents and eight perches in the concession of the continuations (*allonges*), as far as the meeting of this line with that which divides the said continuations from the range Potage or petit Saint Henri ; thence towards the south west following the said division line between the continuations and the range Pontage or petit Saint Henri as far as the river Etchemin, a distance of twenty arpents ; thence following the sinuosities of the said river going towards the east as far as the division line between range Pontage or petit Saint Henri and the parish of Saint Henri de Lauzon ; thence following this latter line going towards the north east, twelve arpents and four perches to the point where this line intersects the line of division between the numbers one hundred ninety one, of the plan of the seigniory of Lauzon ; thence towards the north west about one arpent two perches on the line of division between the said numbers one hundred and eighty nine and one hundred and ninety one to the intersection of the river Pintendre ; then following the sinuosities of said river Pintendre to the intersection of the division line between the range Coutance and the village des Couture ; thence thirty arpents towards the north west following the line which divides the range Coutance from the said range Pontage or petit Saint Henri and from the said continuations ; then following towards the north east an irregular line, being the division between the lands of Thomas Samson and Augustin Samson to the summit of the Cape, north by the limits of the town of Levis.

2. To erect into a distinct school municipality the parish of Saint Telesphore, in the county of Levis, which, however, shall contain for school purposes, only the part which is outside the town of Levis, revoking thereby the proclamation of the 17th of June last (1876), which erected it with the same limits as those assigned to it as a parish.

3. To detach from the municipality of Saint-Stanislas de Kostka, in the county of Beauharnois, on the south side of the river Saint-Louis, starting from the land and residence of Jeremie Monette, coming to the road which separates the said parish of Saint Louis de Gonzague, in the same county, that part of the parish of Saint-Louis de Gonzague, on the south side of the river Saint-Louis, in the eighth range of Ormstown, starting from the land and not from the residence of Bellarmin Laberge inclusively, to the road which separates the said parish from that of Saint Stanislas de Kostka, that part of Saint Louis de Gonzague, north of the river Saint Louis from the land and residence of M. Narçisse Menard inclusively, coming to the Larocque road, to annex them to the municipality of Sainte Cécile, in the said county of Beauharnois, for school purposes.

4. To detach from Notre-Dame de Lévis, in the county of that name, the part hereinafter described ; bounded on the east by the village of Bienville, south by the government property, west and north by the town of Levis, to annex it to Levis for school purposes.

Quebec, 7th December, 1876.

His Excellency the Administrator of the Province has been pleased, in virtue of the powers conferred upon him by the 136th and 137th clauses of chapter 15 of the Consolidated Statutes of Lower Canada.

Gaspé, Glaude Arbour.—To revoke the appointment of the 9th of August and to allow the one of the 9th of June last, to stand, the persons named on the 9th of August aforesaid not residing at Glaude Arbour.

County of Gaspé, Aubert.—To revoke the appointment of the 20th of September last, relative to the Revd, M. Chs. N. Boudreau and to Mr. Alexandre Cormier, an election return having been sent to the department in the meantime.

County of Maskinongé, Saint Elie.—To appoint Mr. Benoni Gardeau, *vice* Mr. J. B. Philibert.

Quebec, 15th December, 1875.

His Excellency the Administrator of the province has been pleased, by order in council, dated the 11th of December instant.

1. To erect into a school municipality the village of Cowansville, in the township of Dunham, county of Missisquoi, compri ing lots Nos. 24, 25 and 26 of the fourth range of Dunham, and the west half of lots 24, 25 and 26 of the third range of the said township, said erection to take effect only from the first of July last, according to a special agreement with the commissioners of Dunham.

2. To erect into a distinct school municipality, and under the same name, the mission known as *Lac Noir*, in the county of L'Islet, reaching from townships Lafontaine and Garneau, to No. 1 of township Ashford and Fournier, on range A.

3. To detach from Tadousac, county of Saguenay, and to erect into a distinct school municipality under the name of "Moulin Beaude," the territory hereinafter described, to wit ; commencing on the south west side of Richard Morin's proprety, and running to river Beaude, on the north east, and comprising the Saint Michel and Saint Joseph concessions.

POETRY.

Don't forget to Pray.

I hear you, happy children, in the garden all day long ;
I love your merry voices, full of laughter and of song ;
I watch your gladsome faces, with all a child's delight ;
For your world is full of flowers, and all the sky is bright.
But whilst you have the sunshine, remember day by day,
The God who gives this joy, and " don't forget to pray."

He loves you, little children ; He sees you when you pray ;
He keeps your feet from falling, and guides you on your way.
You cannot see Him looking, but he is always there ;
And if you only whisper, He hears your faintest prayer.
He loves to see you happy, and remembers you all day.
Wherever you are going—so " don't forget to pray."

And as God is kind and good to you, be loving to each other ;
With gentle words and gentle hearts let each one " love his brother,"
The angry thoughts which pain to-day, forget them ere to-morrow ;
Forgive each others' tempers, and soothe each others' sorrow.
Forgive, as God forgives you ; and remember, day by day,
That He loves and guards the little ones, if they " don't forget to pray."

And as you older grow, and the world seems full of care,
He comforts you in sorrow, helps you His cross to bear.
As He leads you in your childhood and through life in His love,
So His grace will be the sunshine that cometh from above :
And that grace is ever promised through every night and day.
To those who seek it humbly, and " don't forget to pray."

He will keep your tongue from evil, and your lips shall speak no guile ;
You shall " blossom as the rose," refreshed by God's own smile ;
And when sailing in your little barque across life's stormy sea,
He sends His angels over you, your comforters to be.
Then look up, gentle little one ; remember, day by day,
You have a friend in heaven—so " don't forget to pray."

It will make your life so happy to feel that He is near ;
You may rest upon your little bed and never know a fear.
When tempted to an evil deed, you try to do the right,
He will see you wish to conquer, and give you strength to fight.
So trust Him in your weakness, and remember, day by day,
He blesses little children, if they " don't forget to pray."

THE JOURNAL OF EDUCATION.

QUEBEC, NOVEMBER AND DECEMBER, 1876.

Duration of daily attendance in School.

At the late teachers' annual conference, held in the city of Montreal, the subject of *School hours* was brought under discussion, and in the course of the debate, Mr. Emberson, School Inspector for the District of Argenteuil, &c., advocated a shorter daily attendance than is usual in the county schools, closing with the following judicious remarks :

" That it is to the advantage of education throughout " the country that the length of school hours be not " more than five hours a day and five days a week. " The arguments adduced in its favour were as " follows ; the nature of the mind of a child is such " that it cannot pay profitable attention to study " for a longer period than from 9 to 12 (with inter- " mission at half past ten, and from 1 to 3. During " the hour from 3 to 4 p. m., the teacher plays rather " the part of a nurse maid than of an instructor. It is " during the last hour—being scientifically estimated " to be an hour too much that the child acquires, if " ever that dislike to school and study which is the " greatest obstacle to its progress in its lessons. In every " ordinary country district there are children who have " to walk two or three miles to school. The exhaustion " caused by this is very materially lessened if the " children start homewards at 3 instead of 4 p. m. " Hence with shorter hours children at a distance are " more likely to attend schools, and thus the greatest " curse and disgrace to the country—children growing " up entirely without education—is to a great extent " removed. Shorter hours in school are likely to " promote study out of school, and study thus pursued " without strict compulsion from the teacher is of " special value in fostering habits of unprompted " industry and self culture.

" By closing school at three, a teacher can keep in a " negligent or refractory scholar till 4 p. m. without " that direct injury to his own and his pupil's health " which is known to be caused by staying in from ½ to " 5 p. m., after a full school-day.

" The hours enjoined by the motion or even *shorter* " *hours than these* have been kept for years in the " Montreal Schools to the entire satisfaction of Com- " missioners, parents, teachers, and taught.

" They have, finally, been adopted in some of our " leading Country Academies, in every case with great " success."

The Teachers' Parliament in Session.

Opening of the thirteenth annual convention of the Provincial Association of Protestant Teachers of the Province of Quebec—The proceedings addresses and debates—Papers read—Proceedings of the morning, afternoon and evening sessions—A large amount of business transacted.

The convention of teachers adjourned last year in Quebec to meet in Montreal on the 19th October. inst, was called to order at 11 o'clock yesterday morning by the President, the Rev. Dr. Jenkins. There was a large representation of the teachers and educators of the Province, and among them we noticed the following gentlemen, well known, in educational circles :—Principal Dawson ; LL D., F. R S., Mr. Hobart Butler, President of the Bedford District Teachers' Association ; Principal Hicks, of the McGill Normal School, Professor McGregor, Inspector McLaughlin, Mr. Lynch, M. P. P., for Brome, Mr. Ferguson, of Quebec, Dr. Howe, of the Montreal High School, John McIntosh, Principal of theGranby Academy, and many others. About two hundred teachers took part in the proceedings of the day.

Mr. Frank Hicks, M. A, Secretary of the Association was about to read the minutes, but on motion they were considered read, having been printed in pamphlet form.

The President opened with prayer, and delivered a brief address of welcome trusting that the stay of the teachers in Montreal would be agreable, profitable, and the means of the advancement of the cause of education.

Principal Hicks addressed the meeting upon the subjects of oral teaching, text books and home lessons. He spoke at some length upon each subject in succession and pointed out a few improvements likely to emanate from the discussion which would ensue. In his remarks as to text books, he instanced the advantages and drawbraks of the oral system of teaching. The oral system was not used exclusively in any part of the world except in the Polytechnic School in Paris, where text book were not in use at all. In speaking of the variety and number of text books used in England and elsewhere, he stated that many were too large and costly for general use. Some of the text books used in England and France cost only a penny, and contained from thirty to sixty pages. One of these books contained the definitions and the first book of Euclid ; another contained a useful geometrical analysis; a third was an elementary treatise on astronomy, and so on with the rest. The great advantage of cheap and small text books was that the pupil did not get weark before he was half through. On the other hand he alluded to one that was so exhaustive as to contain 700 pages. This, it had been computed, would take a child fourteen

years to study in such a manner as an ultimate knowledge of its contents would require. The learned principal concluded his very interesting address by remarking that he would like to see more intercourse between the teachers assembled, and a more full and general discussion of a l the subjects under discussion. This he held was the only way in which a conclusion worthy of so important a body could be arrived at. It was necessary that the convention, should take some decided action upon all matters under discussion, and when all had agreed upon one result it should go forth to the world as the convention's opinion. The public might be assisted in that way in forming opinions conducive to the success of education. Some parents objectend to home lessons and held that their children should be taught while at school and not be required to do home work. On all hese points much could be said, *pro* and *con.*, and he would therefore leave the matter to be dealt with by the convention. (Applause.)

The Chairman trusted that the hints dropped by Principal Hicks would be taken up by all. Even the very youngest teachers could assist by a few words dropped in the right place. He advocated little speeches with remarks to the point

M. Weir, of Sherbrooke street school, followed, advocating a condensed, uniform and complete system of text books that would give the scholar an opportunity to study each one before taking up another given him in an advanced class. He advocated latitude for the teacher in unfolding original ideas in connection with the subject matter of the text-books He favored home lessons as tending to teach the child to apply itself, so that after school days were over the habit would not need to be acquired, but merely improved upon.

Inspector McLauglin was with Principal Hicks in the practical hints suggested. There was such a number of complaints on the subject of text-books that the Convention could not afford to let the matter rest where it was. He was aware that in some sections there had been attempts at uniformity, but there was no general uniformity of text boocks. One or two books, Sangster Arithmetic and a few readers were recommended but there was no series of text books recommended. Such a thing as uniformity would be a great boon to teachers. In his section of the country great difficulty existed from want of uniformity. Some municipalities had American text boocks, others adopted English, and a great many favored Upper Canada text books. For his own part he did not care what system was adopted porvided it was a good one. He suggested that the Upper Canadian system be adopted, and there would be a larger market to choose from. He was aware that the old system of text books in Upper Canada was a very dry affair; but all that had been changed. The American was also a good system, but not for Canadians. If neither the Upper Canadian nor American books would answer, the Convention might hit upon books of their own; but any good series was a great deal better than no series. As to oral teaching, he had decided opinions on that score, but would defer his remarks to some future period. (Applause.)

The Revd. Dr. Jenkins was sorry to inform the Convention that his parochial du ies called him away from the chair. He had a very good executive substitute in Vice-President McGregor, and in his hands would rest the remainder of the labors of the day. He (Dr. Jenkins) would, however, devote as much of his time as possible to their meetings, and trusted that the teachers assembled would find their time agreeably and profitably employed. He had one or two things to say with reference to the subjects remarked upon by principal Hicks. He warned teachers against too much dependence upon books of any class, and deprecated in them any loss of individuality, which he considered fatal to the teachers' influence upon the scholar. He was not in favor of any cut and dried system, and so far from restricting to certain forms, he would leave the teacher have more of his own way in the manner of his teaching and as to the subjects taught. If he himself were a teacher he would take the text book previous to giving it to the scholar, he would study it, and when he had mastered it would submit it to the scholar. As to home lessons, he would be sorry to be the father of a family of boys and girls who did not have home lessons to study. One of his chief enjoyments was watching his boys at their studies during the after school hours, and he considered it perfectly absurd for any father to wih to make social beings of children, to teach them to play chess or dance, or something else, leaving but three or four hours out of the twenty-four to study at the school house. How could the child be educated if only three or four hours a day for a few years should be devoted to it? (Applause.) It would be a rather strange world if that state of things were allowed in the schools. He apologized for having detained his hearers with remarks which he intended should have closed the debate, but uncertain whether he could again take part in the discussion, he had no other course. He wished them prosperity and success in their deliberations, and resigned the chair to Principal McGregor, Vice-President of the Association.

The Cha rman having invited further discussion,

Mr. McIntosh was in favor of uniform text books, and thought that the objection of teachers choosing their own style of text books would come forcibly from the parents of the pupils, who not—more especially where there was a variety of text books used be expected to purchase new sets of books with every new teacher. He would be sorry to see the system of home study abolished from the schools, and considered that the pupil could not do without it.

Mr. Lynch, M.P.P. for Brome, thought the remarks made by Professor Hicks did not cover the question, which he considered a very important one, and the discussion upon which had digressed as it progressed. He trusted that this would not go on, but that a motion would be made, and the discussion be confined to it By that means alone could they, the teachers' convention, publish to the world their opinions as a body. On the question of oral teaching he trusted there would be a decided expression by the teachers; that the convention would take a new departure, and not allow outsiders to interfere with their deliberations No man should be allowed to take advantage of the convention to foist his own particular ideas upon its members nor should they allow themselves to be patronized and sympathized with. The teachers themselves did the work, and they only were competent to discuss the best means of doing it. If the teachers wished to form mutual admiration societies they could do it outside of the Convention but while they were met to do business, the teachers, and only the teachers, should do it, so that no opinions that were not their own should go to the world. It was mainly for that purpose that he was present, and he trusted that from day to day sound practical questions would be discussed in a manner that would lead to some conclusions as to the merits of each. He asked their pardon if he had monopolized their time too long in expressing his views, but the manner in which the discussion had wandered from the point of issue was his excuse for speaking as he had. (Applause.)

The Chairman trusted that some motion would be submitted that would cover the views expressed by Principal Hicks, which he thought covered a good deal of ground; hence the digression of the discussion. He could not help remarking that the last speaker more than anyone else, sympathized with the convention, and expressed his sympathy more markedly than anyone he could think of. (Laughter and applause.)

Mr. Duval spoke on the question at some length, and id not think the Convention need look outside for books. There was a time in the history of every child when it learned to walk by itself, and he thought the time had arrived for the Province of Quebec; that there was talent enough and energy enough among educators in the Province to get up a good system of text books. He had seen something by Dr. Miles, which he considered was just the thing. He did not believe in taking everything we wanted from Upper Canada, but thought that Province too selfish in many respects.

Mr. Frank Hicks said that the only way to place the subject tangibly before the convention was by a motion of some remarks with reference to ths conventions that had taken place this year without doing anything to benefit the educational interests of the Province. He was aware that there was necessity for action, therefore he would submit his motion without further remarks:

"That in the opinion of this Convention a uniform system of text books is desirable, and that the text books, to be most beneficial, should be concise, but should retain more than the mere elements, so that the scholar may find subject work for his own mind."

Mr Duval seconded the motion.

Mr. Barwick supported the motion.

After remarks from Mr. Campbell, Principal Hicks, Dr. Howe and Inspector McLauglin, the motion was unanimously carried.

In answer to questions by Mr. Ferguson, of Queb c.

Principal Hicks said that according to law the Commission of Public Instructien were required to take definite action in

the selection of text books for use in the public schools. This had not yet been done, but at the last meeting the members had decided to recommend those they considered the best books; it would be contrary to law to use other than these books, but in case any teacher was in the habit of using good books the Council would include the same in their recommendations.

The Convention then adjourned.

AFTERNOON SESSION.

Through the courtesy of the Council of the Natural History Society, the museum and rooms of the institution were opened during the hours of recess and will continue to be every day while the Convention lasts. Many of the teachers, accordingly, availed themselves of the opportunity afforded them of inspecting the various objects of interest in the museum. The members of the Montreal Microscopic Club, also, exhibited their valuable instruments and their fine collection of specimens, illustrative of the natural history of Canada. A special intellectual treat was furnished by Professor Baker Edwards, who gave a most instructive exhibition, with requisite explanations, of some remarkable and peculiarly electrical phenomena, for which his admirable apparatus offered rare facilities. These experiments gave a lucid and impressive interpretation of the rationale of electr cal discharges and the different ways in which they may be modified, according to the rarity or density of the atmosphere and other circumstances so as to produce light condensed or diffluent, or to generate heat of varying power and action. Dr. Edwards, who is as enthusiastic as a Rosicrucian, without the Rosicrucians' delusions, however, with regard to his chosen branch of science, took the utmost pains to make his operations and their results intelligible to the most ordinary capacity, and it is a pity that a larger number of persons had not found it convenient to witness his experiments. To those who were present they proved most interesting, valuable and suggestive.

In the lecture room of the Institution a fair variety of text-books and scholastic apparatus was exposed to view. Messrs. Dawson Brothers and Messrs. W. Drysdale and Company had, each, a large collection of standard works on the chief branches taught in our schools, which attracted considerable attention. The latter of these firms also exhibited MacVicar's apparatus for teaching arithmetic, a useful invention, which tends to save considerable time both for teacher and pupil. It is simple in construction—a blackboard with a difference—and one wonders, on witnessing the evolutions which the figures undergo, as it is worked, that it took so many centuries to make the discovery. An object of still greater interest was contributed by Messrs. Morton, Philips and Bulmer, and one which, in all likelihood, will, before many years have elapsed, be well known and extensively used. This is Zuccuto's patent papyrograph, by means of which, according to the printed description, "500 or more permanent fac simile impressions of circulars, price lists, designs, music, &c, may be rapidly and very cheaply printed in an ordinary copying-press, direct from a writer's own manuscript, and without employing ink or soiling the fingers." The possibility of its doing what is here detailed was exemplified on the spot satisfactorily. Its *modus operandi* is simple enough, the secret lying in the composition of the stencil paper. Professor Robins will illustrate its utility at one of the sessio s of the convention, as well as that of another copying invention, Edison's electric pen. In inspecting these and other ingenious, curious, instructive or beautiful objects the time of recess passed pleasantly away.

At 2 o'clock or thereabouts the convention again met.

Professor McGregor, President of the Montreal Teachers' Association, having called the meeting to order.

Mr. Frank Hicks, M.A., read the minutes of the previous meeting, which were adopted in due form.

Mr. Robert Weir, Head Master of the Sherbrooke street school, then read a paper on "Reading," which, as well as by the beauty of its style and the earnestness with which it was enunciated, as by the valuable reflections and suggestions which it contained, recommended itself to the audience. As the scope of the subject, if considered in all its relations, was so extended, the essayist treated it only in its connection with the higher classes of schools. He dwelt on the importance of the subject and the consequent necessity of its being dealt with by correct methods. It claimed the first attention of the young and was the delight and solace of declining years—not as, in ages gane, when all knowledge was confined to monkish cloisters. Knowledge was the source of thought, and reading conferred knowledge. But reading must be with the understanding. "Understandest thou what thou readest?" was a question as applicable to people of to-day as it was long ago to the swarthy convert of the deacon Philip. The essayist traced modern education back to its source in the East, where the Crusaders caught the light unconsciously from the turbaned hosts of Saladin and his successors, But for them, little as it could have been foreseen by the zealots of those times. England and France and Germany would be very different now from what they actually are. He then dwelt on the course of study in our schools, pointing out how, in some cases, it might be beneficially modified. He shewed the error of devoting too much time to one branch at the expense of another. He selected the Fifth Book as an instance of the pleasure and profit to be derived from reading, directing attention to its varied treasury of some of the finest prose and poetry in the English language—each selection being worthy of, and amply compensating for, the diligence of weeks. He illustrated the tremen dous interest an importance which reading assumed, by a well-drawn contrast between the books which instruct and elevate and the literary filth—the dime novels and yellow-covered sensations—in which too many choose to welter. Far better not to read at all than to read such literature as that! And his hearers, he feared, had but an inadequate notion of how much it was in vogue. Though the fault did not lie entirely with the teachers, he thought they could certainly do something to prevent the spread mong the young of an evil so alarming by instilling and encouraging a love and aspiration for what was elevating and beautiful. As to the act of reading, it ought not to be mere vocal imitation, like that of a parrot. He considered that it included and went beyond elocution. The latter was not to be ignored, but comparatively few were destined to become orators. It was in the social and domestic circle that the delights and comforts of reading found their amplest illustration. The teacher of reading ought to be a good reader. A difficult passage well read became intelligible to the child, and what was otherwise incomprehensible became plain. Mr. Weir instanced Macaulay, as presented to us in Trevelyan's delightful biography, as one who appreciated and imparted all that reading signified. He then entered sowewhat technically into the subject, and treated of pronunciation, accent and provincialisms The chief cause of indistinctness of enunciation was the ignoring of consonants. Passing from this part of the subject, Mr. Weir touched on the necessity of training a child to put his soul into what he read, of developing his mind as well as his voice, and closed his paper, of which we have been able to give but an imperfect summary, by an eloq ent peroration on the consolations to be derived from the reading of the great authors of the past and the present.

On the motion of the secretary, seconded by r Inspector McLaughlan, a vote of thanks was tendered to Mr. Weir for his excellent paper.

The members of the convention then went to the Gymnasium, where an address on the advantages of physical culture, followed by illustrations, which left no doubt on the minds of those who witnessed it of its importance, was given by Mr. Barnjum. This was one of the most interesting portions of the days proceedings The class, by whose exercices Mr. Barnjum demonstrated his proposition, that physical education should go hand in hand with intellectual development, was a class of young people, girls and boys, from toddling infancy to the "teens," and the manner in which they acquitted themselves, furnished evidence of how much can be effected in the winning of strength and grace by even the extremely young, under skilful, patient, intelligent training. Altogether, apart from the uses of these exercises in the strengthening of the bodily frame and the consequent development of certain valuable mental qualities, they are very pleasing to witness, and, accompanied as they are by music, they form a delightful source of entertainment to older spectators. It is needless to say, then, that t e persons who were present yesterday, some of whom had never before seen anything of the kind, were favorably impressed, and, not a few, no doubt, learned a lesson which will be highly beneficial, not only to themselves but to others.

The calisthenic exercises concluded, the convention re-assembled in the High School, and a discussion took place on Mr. Weir's paper, in which several gentlemen joined Among those who made comments or offered suggestions were Messrs. Rowell and Duval, Drs. Howe and Dawson, and Principal Hicks.

The last mentioned gentleman brought the discussion to a close by reminding the audience that a lecture was to be delivered on the subject before the adjournment of the convention, which would give an opportunity for its consideration from every point of view.

The meeting then adjourned until eight o'clock.

EVENING SESSION.

The business af the convention was resumed by the secretary reading a letter from the Hon. M. Ouimet, regreting that, owing to the pressure of official bus'ness on his time, he was unable to accept the invitation of the Convention to be present at its meeting. He hoped that the Convention would prove to be profitable both for public education generally.

OPENING ADDRESS.

The Rev. Dr. Jenkins then delivered the inaugural address from the chair.

THE ONTARIO DELEGATE.

After excellent classical music from the choir, Prof. Dawson, of Belleville, as a delegate from the public school teachers of Ontario, was introduced and was received with applause. Being an Irishman, he commenced his address by flattering the ladies. He said when he attended the Convention in the morning he was particularly struck with the extraordinary number of beautiful young, ladies there present and engaged in the work of education in Quebec. (Laughter and applause from the young men.) Beauty went a great way in cultivating the mind, and the children of Quebec he thought, must be themselves to blame if they did not grow up æsthetically educated as well as mentally. (Applause.) He regarded the work in which teachers were engaged, as, beyond comparison, the most important of all work in its effect on mankind. (Applause.) To the teacher was committed the mental, moral and physical culture of the people, and no other but the educationist combined those three duties. The educationists of Ontario fully sympathised with the protestant teachers in.

THEIR COMBAT WITH IGNORANCE AND PREJUDICE

As a delegate from Ontario, he represented in his humble person over five thousand teachers who were engaged in the cause of education in that Province. In Ontario the people were proud to imagine that, if they had not the very best educational system in the world, it lacked very little of being as good as the very best system of education ever employed in this or any other country. And they were not alone in believing this, because at the Centennial, where educationists from all parts of the world had met together, they one and all agreed that as an educational exhibitor Ontario had carried off the palm. (Applause.) He might be allowed to briefly point out some things in that system which Quebec might, perhaps, do well to adopt, and some things which they might do well to avoid altogether.

EDUCATION IN ONTARIO

was divided into public schools and high schools. It was the duty of the public schools to give a broad, English elementary education, and that education was free. Their instruction was not only broad but high, The high schools were doing an admirable work in spreading abroad a taste for higher education, which they found was growing more and more every day throughout the province. The high schools prepared the students for ordinary commercial pursuits, and it they preferred to enter upon a professional career they were prepared for the higher institutions. Every child in the Province of Ontario has a fair chance to start, and to obtain, in the first instance, a broad, sound, English education. From that he can work his way to the high school, where he can obtain a higher English and mathematical education, and if he is a boy of more than ordinary ability, he will be able to carry off a sufficient amount of scholarships in the higher university to enable him to fit himself for the highest professions and positions in the land. (Applause.) Although the girls could go hand in hand with the boys for a long distance in education in Ontario, they had not yet been admitted to the privilege of university education in that Province.

THE MAIN DIFFICULTY IN EDUCATING GIRLS

in the same institutions with boys was to guard against roughness in the manners and habits of young ladies, as the result of associating with girls was found to be good, as it toned down the natural roughness, wildness and barbarism of the boy. The greatest evil the educational system of Ontario had to combat and grapple with successfully was that of irregular attendance at schools. Out of the number of pupils annually taught by five thousand public school teachers of Ontario, there were nominaly 450,000 children attending the public schools, but not quite 200,000 were in average attendance during the last year; that is to say 58 per cent, of the pupils attended for less than 100 days in the year, and 17 per cent, attended for less than 150 days. This was decidedly

THE GREATEST FAULT IN THE ONTARIO SYSTEM,

and to reform it, in the first place they were trying to introduce better teachers into the schools and to give them better pay. It was found that a good school with good teachers would have a more regular attendance than a school that was managed by inefficient teachers. They were also trying to introduce better schools, for the universal experience of teachers was that children who did not care to attend a badly ventilated, ill-swept school would be willing attendants at a handsome, comfortable school. People in Ontario had come to see that if they wished to have the school loved by the school-boy, it must be made worthy of his love. Last year the Province had expended $700,000 in the erection and improving of the public schools, and the total amount expended in Ontario last year for educational purposes was three millions of dollars—an increase of three hundred thousand dollars over the amount expended in 1872. The third remedy they had tried to adopt was

COMPULSORY EDUCATION,

which was a natural corollary to the free school system. He considered it unfortunate that in enacting the statute the word "compulsory" should have been used, as it was a word that was repugnant to the British nature to be compelled to do anything. However, in Ontario the people were beginning to see that if they had to pay three millions of dollars of hard cash in taxes, to promote the education to children they must and shall be educated. In Glasgow, it was found that after the compulsory clause had been enacted the attendance increased fifty per cent. He held that the compulsory law was a good thing to have on the statute book, as the people would soon come to see the benefit of it. He referred to Dr. Ryerson and the great good he had accomplished for the educational system of Ontario. Of all the reforms introduced by that gentleman, if asked to name what he considered to be the most important and what had done most to elevate the standard of education in that Province, he would say it was the system of simultaneous examination of candidates for certificate. The plan was this :—A central committee at Toronto prepared the examination papers. They were sent in sealed envelopes to the Inspectors of the various districts, and at certain hours on set days the seals of these papers were broken simultaneously throughout the Province by the Inspectors, in the presence of the examining Boards and the candidates, and the papers distributed. In this way collusion was impossible, all candidates in every part of the Province being at the same hour engaged on the same subject, and on precisely the same questions. The papers were gathered up and returned to the department at Toronto If any complaint should be made of unfair treatment, the papers were accessible at headquarters, and any candidate could have a grievance redressed. The system of examination in Ontario was as perfect as any system framed by human ingenuity could possibly be. The trustees of public schools know that every teacher who holds a certificate has properly been examined and has been proved competent, and this gave them confidence and led to increased pay. Five hundred and five dollars per annum was the average salary of most teachers in the country schools of Ontario, and the average salaries of female teachers in the same circumstances was three hundred dollars. They were beginning to find out in Ontario that the three years for which a third class certificate was granted to a teacher was usually too short for them to prepare for a second class certificate, and they were thinking seriously of extending the time. He did not

believe if a poll were taken in Ontario to-morrow that six voices would be found amongst the teachers raised against the present strict system of examination, and he was satisfied if that system were introduced into Quebec, the positions and salaries of teachers would in a short time improve fifty per cent.

Rev Mr. Jenkins on behalf of the Convention returned thanks for the prac ical address of the delegate from Ontario.

The proceedings were then enlivened by a solo beautifully sung by Mrs Waters.

Mayor Hingston was then called upon to address the Convention. After some preliminary remarks he said he had visited a great number of school examinations in the city, and while he saw a great deal to admire, he also saw with regret that more was expected from the teachers than should reasonably be looked for from them, and the consequence was that the children were injured. There was a tendency to cram them which was more the fault of the parents than of the children. He then referred to the inadequate salaries paid to teachers, and doubted whether it was possible for a man to keep a wife and bring up a family on what the delegate from Ontario had mentioned as the average salary for country teachers in that Province. He advocated better recompense for their services.

Principal Dawson said that although our common schools on this continent were better organized than those of Great Britain, there was in the mother country a disposition to excel in the higher seminaries of learning. In their endeavors to perfect the system of higher education, they had left the common people to look after themselves. Instead of commencing at the foundation, as we had done, and building upwards, they had commenced at the top and were building downwards. He then referred to the Normal School, and spoke at considerable length of the ex ellent work which it was performing in the cause of education. He was surprised to hear that there was anyone dissatisfied with the high schools, and did not believe there were six men in Montreal who would have the city without such institutions. With regard to the common schools, he saw no necessity for making education compulsory. In fact, the principal trouble was to find accommodation for all the children who were looking for an education. The school-houses were overflowing with pupils. In the future, when the people of Montreal, instead of a paltry $100,000 would grant two or three hundred thousand dollars for their city schools, if there should be found any excess of accommodation, it would be time to ask the legislature to insert a compulsory clause in the School Act. There was a tendency on the part of the Commissioners to try and introduce some features of the Ontario system.

They had taken up the question of school books, and prepared a list of authorized books for the schools for the first time. They were also endeavoring to improve the inspection of schools high and low, throughout the country. There was also under consideration a system of examining candidates for teachers' certificates, similar to that described by the delegate from Ontario. He wished to say to the teachers from the country that the Committee was, for the present, merely feeling its way. It was endeavori g to find out what were the special wants of the schools. He assured the teachers they would find that in all points the committee were merely anxious to try and do what was best in the circumstances, and would be glad to have any suggestions or recommendations of any kind from their country friends who where engaged in the work of education. He hoped that the changes in the education law might, in so far as the schools of the English speaking population were concerned, work some very important and salutary changes.

The meeting was then brought to a close.

SECOND DAY OF THE CONVENTION.

AN INTERESTING DAY'S PROCEEDINGS SOME REAL WORK DONE.

After routine business had been transacted,

Rev. Mr. Jenkins took occasion to remark upon a paper which, he said, had been written by him some time ago, and from which he would read a few extrats to fill up the time until the next paper was ready. His paper went on to contend that the morals and manners of the pupil were affected by the example and influence of the teacher. Children were surprisingly observant of circumstances transpiring around them, and were quick to take advantage of any circumstance observed by them, and there were other matters than mere book-learning which were important to the education of children. In matters of dress, déportment, &c., the teacher should be neat almost to primness. If she wore a watch, a neat ribbon—and not a gaudy chain, even of the purest metal—was what the speaker would rather see worn. He did not advocate fashionable dressing; and yet the teacher should dress becoming her station. Many of the habits of the teacher would be thus communicated to the pupils to their good. The matter of deference to superiors in school and out of school also was touched upon, and the reverend gentleman considered this one of the most important questions before the Convention. He often had heard answers given to head masters that made him positively ashamed of the boys. The rude "Yes, I do," and "No I don't" were not terms for scholars to use to their teachers or masters. Again, teachers—where there are many in one room—should not quarrel among themselves. Children were quick to observe, and when they noticed these things, all that the teacher could do in either class would not preserve discipline. With pupils, the "Do-not-as I-do-but-do as-I-tell-you" policy would never do. They must be taught by example as well as by text-book, and too much attention could not be given to the subjects alluded to. He was aware how thankless was the position of the teacher, but theirs was a work which would grow and bring forth good fruit, long after they departed this world.

Principal Hicks was also aware of the importance of the measure and commended it warmly.

Dr. Kelly was also in favor or keeping the subject before the teachers, and held that flowers, paintaing, &c., in schools had a brightening influence.

A vote of thanks was moved by Professor Hicks, and unanimously carried.

Mr. Hobart Butler then read the the following paper:—

"CONSIDERATION OF THE QUESTION OF PROVINCIAL AID TO SUPERIOR SCHOOLS."

At our last annual conference it was my privilege to address you upon the importance of classical study.

I then endeavored to show my strong convictions of its continued utility as an important part of superior education.

We trace our modern culture directly from the revival of classic study, study which produced the *renaissance* throughout Europe. The sixteenth and seventeenth centuries witnessed the beginning of the dispersion of the thick clouds which for ages had settled down upon and smothered human thought. It was the warmth and the light of Greek and Roman literature, of Greek and Roman art, released and diffused by the study of the classics, which gave the impulse, and fostered into being that lusty spirit of inquiry that challenges all things, puts cant and seeming upon their defense and which has brought and is still bringing order out of chaos.

It was not so much the knowledge which the ancients had to communicate as it was the lofty intellectual spiritual purpose they revealed, the fine artistic sense, the high poetic aspiration, the passionate love of liberty, all and much else combining to produce the ideal Greek and Roman, to know whom was indeed a *liberal education*.

While we approach with admiration and gratitude the consideration of the subject of classical study, we should not forget the requirements of our modern world—the needs, the necessities of the great body of youth which will hold in their keeping for an entire generation the honor, the character and the wealth of our home and country.

We have a fund which was devoted by wise forethought to superior education. Its distribution and use has devolved upon a body of men who are supposed to embody our best intelligence in this direction—and we have as a result the circular which I hold in my hand. It expresses a desire to communicate the views and feelings with which the Council of Publique Instruction begin their work and propose to conduct it.

To this end a sub-committee was appointed, which determined that superior education meant so much Greek, Latin, and mathematics as would pass a boy through the portals of a university; and that all schools not working with special reference to this end should be cut off from Government aid That the grant to the schools should be in proportion to the number of pupils devoted to the study of those subjects. That the opinion of special superintendent Emberson should be the judgment of the Council, in that out of fifty-six schools, heretofore supposed to be *superior* schools, only five could be called such—that of the remainder only twenty could be regarded on any grounds as worthy of consideration. That public notice be given that this is the sum of educational conception held by the superintending body of Protestant schools for the Province of Quebec. That the money heretofore given in aid of fifty-six schools should be devoted to the support of five found efficient, less such amount as may be distributed to twenty others which the Beard may determine to encourage.

What is it that gives character to the Dominion to-day? What is the source of the pride with which we reflect upon our national attainments? It is not the work of our Divines. It is not the work of

our lawyers. It is not the work of our physicians. While we acknowledge the faithfulness with which *they* fulfil the duties devolved upon them by society, it is not they who have built our cities, who have cleared our forest, who have covered the land with comfortable homes and smiling villages. It is quite another body of men, who by their cultured skill, boy theire ducated heads and hands, have enabled us to enter the lists in competition with the *world* and return bearing *three hundred and fifty* prizes. Our commercial marine whitens the ocean with its canvas and has given us a rank among the *three* or *four* great trading nations of the earth. Our merchants, our bankers, our manufacturers have each and all in the race of enterprise taken a rank high among the great workers of the modern world. Our farmers have bodly faced the terrors of an inhospital climate, and by industry and art have fairly conquered the furious elements; their horses, cattle, sheep and swine are no longer dwarfed by cold and pinched by want: warm stables and abundant provender, with intelligent care, have made Canada the great source of supply for thoroughbreds throughout the States; our grains, our butter, our cheese, all tell the story of intelligence, thrift and enterprise. Compare the men and women who have done all this with those whose national life is marked by as signal a failure. Look for the cause of such failure, and you find it in ignorance and her pestiferous progeny. You find the schools limited by Government supervision in even a greater ratio than five to fifty-six. That only those schools are encouraged which (in the language of this report) "place the student by classical study on a level with the liberally educated of other countries and enable him to occupy those public positions to which he is entitled." Our common schools and academies preparing the entire youth of the country for a life of earnest intelligent work, are alike unknown. The Academies which rank next above the common schools are beyond question the source of the mental discipline and accumulated knowledge upon which the people of Protestant States have erected that magnificent fabric of industrial activity, which has given to them an undisputed dominance in Europe and America. Are these to be ignored? Are they to be told by the highest educational authority in the Province that they have no *raison d'etre*.

It must not be forgotten that the Canadian people have strong opinions. They know the work which their boys and girls will have to do; and they are not so far astray when they conclude that in the higher branches a substitution of the natural sciences for Latin and Greek is in the direction of their needs.

Agricultural chemistry has sprung into being in answer to the farmer's wants, and is slowly, but we hope surely, with the aid of meteorology, anatomy, physiology, botany, and other kindred sciences.

Natural philosophy and its laws are the source of the wonderful mechanical improvements of modern times; and no mechanic is properly equipped for his duties in life without a considerable knowledge of its principles. The merchant and the banker must know something of the laws of trade; while political economy, the youngest of the sciences, born of our modern industrial worlds is needed everywhere to sweep away the stupid prejudices which still remain a drag upon our prosperity and happiness. All the urgent necessities of life press upon the consciousness of the parent and sharpen his judgment upon the educational requirements of his children. As a consequence, unless he may have a boy destined for a profession, he refuses Latin and Greek, but takes kindly to the sciences; he naturally looks to them for a solution of the practical problems which have puzzled and thwarted him through life.

Another consequence of a study of the natural sciences should not be overlooked. It furnishes at all times a healthy occupation for the mind.

Living in the natural world, with its plants, with its rocks, with its phenomena of heat, of light, of electricity, and its heavenly bodies piqueing his curiosity, the man of superficial culture in one or more of its divisions can hardly remain so. The unknown is so infinite, appealing to him in season and out of season to insert the key which his school has imparted to him, and enter upon that more perfect adjustment of his moral and intellectual being to the great natural universe of which he is a part; while upon the other hand with what mortification we see so many of the graduates of the universities, henceforth resting upon, their labors, plume themselves upon their superficial attainments, "thanking God they are not as other men," from the fact alone of a little smattering of Latin and the B. A., and M. A., which they received from *Alma Mater*. They conceive themselves justified in devoting thier lives to fostering their conceit instead of entering like men upon the work which waits upon us all. They have achieved the chief end of man; and if they condescend at all in the way of activity among men, it is to labor to conserve what they think to be the honors and the rights of their order. The learned professions can only be approached through their novitiate; and in their supercilious contempt for those outside of the, to them, charmed circle, they arrogate exclusively to themselves in the language of the report, "that culture which places them on a level with the liberally educated of other countries, and enables them to occupy those public positions to which they are entitled."

Our academies which the Board of Education thus proposes to sacrifice are the natural and necessary development of our district or common schools. These schools are in the hands of young girls who are overworked in the task of starting the little ones on the road to knowledge, and unless our popular education is to stop with them each township should have at least one superior school, and this school cannot be denied to the people, even though they refuse to see in Latin and Greek the studies necessary for their boys and girls.

It is not pretended that the girls should have a classical training. The Universities will not admit them, however well they may be prepared for matriculation. One half of the entire people are women. Does the Board of Education correctly interpret the will, the purpose of our Protestant population, when it thus ignores even their existance what claim have the boys for aid and encouragement in mental culture which the girls have not?

Knowledge is wealth: poverty and want are as painful to woman as to man. Knowledge is power: woman is by nature afflicted with burthens which men have not; and to deny her the relief which knowledge can bring is barbarous. Knowledge is health: disease is as oppressive to woman as to man. Besides, man inherits from his mother, and if he wants vigor and buoyant life himself, it must be hers also.

We little realize the enormous gain to society which has resulted from the meed of education that has been accorded to woman, and still less do we foresee the consequence of a culture that shall open to the quick perception of woman the great storehouse of Nature's secrets. With these the natural sciences directly have to do, and, whenever the mother is prepared to interpret them to her little ones, we shal have made the longest stride of all those which have removed men from the gross, animal existence of their savage ancestors.

Considerable discussion followed the reading.

Inspector McLaughlin had all respect to the Council of Education for the Province. He believed the right men were in the right place on that important body, but he could not agree with them when they cut off the large number of schools from their support, upon the report of one man who inspected the schools once during the year. It might be the best way to have a few really good academies, but he did not believe in cutting off all the rest. He contended that these academies cut off had been the means of placing Protestant education so far ahead as it now is. So far as he could see this had been done because of the lack of classical education in them. It was a question whether it was right to compel every person to adopt a classical education or none at all, and if it was only to retain jurisdiction, the best plan of the Council of Education was to pay each one the trifling annual allowance, which if cut off would leave them private schools without supervision. It would not do to cut off 13 or 14 schools altogether.

Mr. Lynch, M.P.P. for Brome, had been named as one of the adjunct committee of the Council, in connection with Mr. Irwin, whom he had requested to take no action on the report referred to. This was readily acceded to, and no action would be had until next July. No persons were so interested in these as the Protestants of Montreal and Quebec, and to strike these schools from the list would be aiming a blow at Protestant education. These schools were surrounded by Roman Catholics, and to take away the miserable pittance allotted for their support because they did not possess a classical scholar, would be sincerely regretted by the Convention.

Dr. Kelly asked who made the report referred to.

Mr. Lynch asked the secretary to read the report.

Mr. Frank Hicks read the report, and it was explained that copies had been circulated throughout the Province.

Professor Robins asked how it was that this report of a subcommittee had been circulated instead of having been reported to the committee which had been appointed. He could not see that the report was before the convention at all, or that the Council of Education was responsible for it.

A voice—It is a feeler. (Laughter).

Professor Robins continued, and held that so far as the public of Montreal were concerned there was none of them alluded to in the report. When Mr. Emberson had been present in Montreal he had received useful information from the Montreal High School, and these were not mentioned in the report at all. After some further remarks, the learned speaker said that if the Convention and the Protestant people of the Province submitted tamely to have these schools cut off—to allow their outposts to be driven back or cut off—they were simply committing suicide.

Mr. Butler explained the mode in which the school had been inspected, sharply criticizing the Inspector's knowledge of Greek, which be contended was faulty in two instances.

Mr. McLaughlin corroborated the latter statement when appealed to.

Dr. Kelly objected to the report being carried out because an inspector, however proficient, had spent one day in the school's

inspection, holding that one or even two or three inspections were insufficient to show the true state of the school.

Mr. F. Hicks, Dr. Howe and others having taken part.

Mr. Emberson rose to explain that he had not made the report under discussion, as would be seen from the inverted commas. He had not recommended any school to be struck off. Before his report was attacked it would have been but fair that it should have been before the meeting, which can be done if ordered to be printed by the convention. As to the mistakes in his Greek examination, he had spent already some twenty years in the study of the language, and would rather argue the point with Mr. Butler or any one else than concede that he had been in error. (Hear, hear.)

The discussion having assumed a question as to whether or not the report was based upon Mr. Emberson's report,

Principal Hicks thought little was to be gained in that way. The convention had no right to judge parties.

Mr. Lynch contended that it was not Mr. Emerson's report but action of the Council that was under discussion. He suggested a motion to cover the wishes of the convention.

It was then moved by Professor Duff, seconded by J. Ringland, Esq., "That this Association earnestly urge upon the Protestant section of the Council of Public Instruction great caution in proceeding in the question of the withdrawal of public aid from certain superior schools in the province, as the action already taken has undoubtedly caused great irritation."

Mr. Duval, while admitting the principle, thought the motion too arbitrary in tone, and was about to proceed to discuss the question, when he was called to order.

The chair—I have put the question.

Mr. Duval—I claim my right to speak. I was interrupted by you before.

Several voices—Yes, that is true ; go on.

The Chairman—I appeal to all if I did not ask "are you ready for the question," and received no answer.

A number of voices—Yes, that also is true.

The Chair—Well, I now declare the motion carried unanimously, only one person voting against it that I have seen.

The meeting then adjourned until two o'clock.

IN THE AFTERNOON.

Professor Andrew gave some illustrations of the progress that can be made in the art of reading on the part of very young children. The success achieved by the Professor was indeed very marked, the classes, both boys and girls, having given the most unmistakable evidence of his training.

A vote of tanks was proposed to the little ones, and was carried unanimously.

One little miss was requested to acknowledge the compliment and her embarrassed silence as she stood face with the Convention, making several ineffectal efforts to speak, was much more eloquent than anything words could utter.

Mr. Rowland asked how long the children had been under the Professor's tuition. He considered it important to know that when he saw before him a class each of whom read from places selected by strangers, and from books with which they were unacquainted.

Professor Andrew replied that the boys had been three years and the girls only one year. It was much easier to make headway with the little girls. Their speech was more flexible (laughter), and they were not so diffident in coming before an audience if taken young. After a certain age the trouble was that they were afraid of being laughed at.

A vote of thanks was tendered Professor Andrew.

At the request of chairman, Professor Robins gave some interesting explanations in the papyrograph and Eddison's electric pencil in multiplying copies of manuscript when required. The process with the electric pen was specially interesting, and Professor Robbins claims to be able to produce 400 or 500 copies in an hour. Examination papers, text-books, synopsis of lessons, &c., are departments in which the pen would be of great service, and it was recommended in small schools in preference to the papyrograph, which also had the merit of being very expensive, while the pencil could be bought for $30. He had been visited by a Boston gentleman as to the working of the process, and he believed that the papyrograph was in use by the Boston Board of Education supervisors.

A hearty vote of thanks was tendered to Professor Robins for the very lucid manner in which he had illustrated the working of both patents.

At the request of Dr. Loverin, he was allowed fifteen minutes wherein to explain the Zabian method of reading history. He explained that he had received a medal at the Centennial for the method, and asked the teachers to consider it, and if thought well of it to endeavor to introduce it as an auxiliary to text books and oral teaching. He instanced the utility of the system by asking questions of a boy and girl—scholars in the city schools.

And interesting paper by Dr. Miles on phonography caused some discussion, and the meeting soon after adjourned.

THE CONVERSAZIONE.

In the evening a conversazione was held in the William Molson Hall, McGill College, at which not only the Convention, but the general community was fully represented. The attendance was exceedingly large, so large that not a few had to be satisfied with standing-room. And, as those who offered their services on the occasion had no reason to complain of the manner in which their generosity was appreciated, so, also, was there every reason to be gratified with the entertainments provided. The programme was ample, varied, and well selected, and the achievement of those whose names appeared on it were quite equal to their aspirations. A slight change was rendered necessary in consequence of the unavoidable absence of some members of the Orpheus Glee Club, a duet, admirably performed by Dr. Davies and Mr. J. W. F. Harrison, organist of St. George's Church, taking the place of a quartette. The songs sung by Messrs. Bourne and Millar had each its characteristic merit. Their voices are widely different in style, but each one has its peculiar excellence, and both gentlemen have rare powers of pleasing. Mrs. Thrower gently wielded her customary sceptre over an audience delighted to hear her, and was awarded an encore in both parts of the programme. Miss McGarry read one of Aytoun's stirring "Lays of the Scottish Cavaliers," the "Burial of Dundee," with spirit and effect, giving to the words which she uttered an intense reality which carried the minds of the vast assembly over time and space to the actual scene where the pride and sorrow of loyal Scotland found its utterance. But, without detracting in the least from the rest of the entertainment, the "Pyramus and Thisbe," that most telling of interludes which Shakspeare has introduced into his beautiful "Midsummer Night's Dream," as acted by several High School boys, was the *piece de resistance* of the evening. The parts of the unfortunate lovers, of the lion, of the wall, &c., as represented by the comically improvised company of the drama, with their irresistably quaint blunders, corrections and suggestions, were acted with an appreciation of their ludicrous significance which did credit to the youthful aspirants to Thespian honors and gave evidence of the skiful and conscientious training which they must have received from Professor Andrew. Few comedies, indeed, have had a more enthusiastic reception.

As has been casually intimated, the programme was divided into two parts with an interval of half an hour between them. This recess was devoted to a visit to the Library and Museum, and was pleasantly and profitably spent. Among the various objects of interest which attracted intention, not the least worthy of it was the fine collection of historical works presented to the College by Peter Redpath, Esquire, which is an ornament and a benefit to the institution while it is a lasting honour to the donor. The example set by Mr. Redpath to his wealthy compatriots in this valuable gift as well as in his munificent donation of a complete library of the Greek and Latin "Fathers" to the Presbyterian College is an excellent lesson to the youth of the country on the duties of a citizen, and will transmit his name to posterity as no monument of brass or stone could do. It will be gratefully recalled by future generations in association with that of the noble man who founded the institution and of him who so bountifully continued the work.

The second portion of the programme had some welcome additions in the form of addresses by the Rev. Drs. Murray and Macvicar, which were in admirable harmony with the object that had brought so large an audience together. We are unable, however, from press of matter to do more just at present than record their occurence. It was pretty late when the pleased and pleasant gathering separated, with the conviction that the conversazione had been in every respect a success.

At the beginning of the entertainment Professor McGregor presided in the absence of Rev. Dr. Jenkins, who, however, made his appearance soon after, and took his proper place. Among the other gentlemen present were the most Reverend the Metropolitan, the Dean, Dr. Dawson, Principal of the McGill College ; Dr. Dawson, the delegate from Ontario, and several other gentlemen of note either on the platform or in the body of the Hall. Not only the class of educators, but the citizens generally were largely represented in the audience.

OBITUARY.

The Late Lieut. Gov. Caron.

We regret to announce the death of the Hon. Réné Edouard Caron, Lieutenant Governor of the Province of Quebec, which occurred at a quarter-past four o'clock on Wednesday afternoon the 13th December, 1876. His Honor, as our readers are aware, had been in a very precarious state of health for some time past. A few weeks ago it became necessary to appoint an Administrator. Since that time the Lieutenant Governor has been gradually sinking, and his decease was therefore not unexpected.

Mr. Caron was born in the year 1800, at St. Anne, Cote of Beaupré, County of Montmorenci, where his father Augustin Caron, a farmer, had also been born and lived. The elder Caron, who was in easy circumstances, twice represented the County of Northumberland in the old Lower Canada Assembly. The deceased was educated at the Seminary of Quebec and at the College of St. Pierre, Rivière du Sud. At the latter institution he received his classical education, and made the acquaintance of several persons who subsequently occupied a conspicuous position in Canadian annals. Having concluded his general studies in 1821, Mr. Caron's attention was turned to the law, and in the same year he entered upon the study of the profession in the office of Mr. André Hamel, and was admitted to practice in the District of Quebec in 1826. The time is said to have been a propitious one, for about this date a number of the prominent members of the legal profession had either passed away from life or been raised to the Bench, and Mr. Caron's abilities were sufficiently marked to secure for him very speedily an influential *clientele*. His professional progress was therefore rapid. At the first election of City Council in Quebec in 1832, he was chosen a member. In the following year he was elected to the Mayoralty, a position which he continued to held until the incorporation Act expired in 1837. He was also elected in 1834 to the Lower Canada Assembly for the Upper Town of Quebec, and held the seat until 1836, when he was induced to send in his resignation in consequence of a demonstration which some of the electors got up, and which he had reason to believe reflected on his conduct as their representative. In 1838 he was nominated a Legislative Concillor by Lord Gosford but the Union of the Province being accomplished shortly afterwards, he did not take his seat. From June, 1841, he sat as Legislative Councillor until March, 1857, and he held the office of Speaker of the Council from November, 1843, to May, 1847, and again from March, 1848, until August, 1853, when he was appointed a Judge of the Superior Court for Lower Canada. He was also appointed by Lord Sydenham Mayor of Quebec for two years when the city was again incorporated, and he was subsequently elected each year to the same office until 1846. Before his legislative career terminated he was a member of the Lafontaine-Hincks administration.

In January, 1855, Mr. Caron was transferred to the Court of Queen's Bench, and remained a Judge of this Court until the 11th of February, 1873, when he was appointed to the office of Lieutenant Governor of Quebec. During a considerable part of his judicial career he was engaged as a Commissioner in the codification of the civil law of the Province, conjointly with Messrs. Morin and Day. He also held at different times several offices of a minor and unprofessional character. He was President of the *Institut Canadien;* of the Literary and Historical Society; and of the St. Jean-Baptiste Society of Quebec. He was created a Q. C. in 1848; received the degree of LL. D. from Laval University, 1865; created a commander of the Order of St. Gregory the Great in 1873; and a Knight Commander of the same order in 1875.

The foregoing sketch of Mr. Caron's life shows that his career was eminently busy and prosperous. As a Judge his opinions were received with much respect, and his labors on the Codification Commission have been frequently the subject of commendation. In manner he was grave and courteous, and his style of speaking clear and concise. He was very regular in his attendance at the terms of his Court, and at a time when the dignity of the Bench was frequently ruffled by scenes of a peculiar character, he was distinguished by uniform courtesy and politeness.

Mr. Caron was married on the 15th of September, 1828, to Josephine, daughter of the late Mr. Germain de Blois, of Quebec, by whom he had a large family. The Lieutenant Governor has passed away at a good old age and full of honors. His life affords a signal example of an active and successful career. Contemporaneous with the century, he played an important part in the changes which have occurred during the last fifty years in our constitution and government. Elevated in his old age to the highest position in his native Province, he has discharged the duties of the gubernatorial position with intelligence and dignity. In him Quebec has lost one of its most distinguished men.

THE FUNERAL.

The funeral of His Honor René Edouard Caron, second Lieut.-Governor of the Province of Quebec, took place this morning, 18th Dec., in the midst of one of the wildest snowstorms that has visited this city for some years past. According to appointment, a very large majority of the members of the Legislative Council and Legislative Assembly met at the Parliament House at 8.15 a. m., the court yard of which was crowded with sleighs and carrioles, covered and uncovered. As soon as possible the vehicles were occupied, and started for Spencerwood, where, since yesterday, the body of the deceased had been placed in a handsome oak coffin, mounted with silver. The body was clothed in the Windsor uniform, in which it was buried. The coffin bears on the lid a massive plate, with the coat-of-arms of the deceased, his name, and date of his birth and death; on the sides and at each end are circular handles, and at each corner is a cross, all of silver. The body lay in state in the "Chapelle Ardente," and was visited by nearly every one of the two thousand visitors to Spencerwood this morning, who took a farewell glance at the well-remembered features, through the glass cover of the coffin. Shortly after 9 o'clock the small lid was screwed down, and the coffin placed in the handsome hearse waiting at the front entrance. The hearse, drawn by four black horses, was draped in black and silver, surmounted by a silver crucifix, with four plumes, one at each corner. At a given signal the hearse, attended by a guard of honor from B Battery, started, followed by a procession of nearly three hundred sleighs.

The journey from Spencerwood to the Government House on the St. Louis road was one of the most trying description; obliged to proceed at slow march, the wind whistling over the Plains of Abraham, bearing on its wings drifts of frozen snow, produced a result that will long remain in the memory of those who took part in

it. The coachman who drove the hearse suffered considerably, the frozen snow cutting open his chin, and causing a wound of no trifling nature.

On arriving at the Government House at about half-past ten, all sleighs were stopped, and the occupants having alighted, the marshals, Messrs. Vohl, Hatt, Roy, Colfer, C. Pentland, and G. Amyot, did their very utmost to form the procession as previously arranged. In the meanwhile the various public bodies had been waiting in and around the Government House since 9.30, and being exposed to the tempest, were covered with powdered snow, and of course anxious to proceed. As soon as possible, the marshals, with commendable zeal, worked hard to put the procession in order, and succeeded in forming them as near as possible to the following programme :—

ORDER OF MARCH.

Detachment of the Provincial Police.
The Brothers and scholars of the Christian Brothers' School.
The students of the Seminary.
Band.
Guard of Honor.
THE BODY.
Guard of Honor.
The members of the family and relatives.
The family physician.
Chief Justices.
Members of the Privy Council, not of the Cabinet.
Members of the Senate.
Puisne Judges of the Court of Queen's Bench and Superior Court.
Judges of the Vice-Admiralty Court.
Members of the House of Commons.
Members of the Executive Council of the Province of Quebec.
The Speaker of the Legislative Council.
Members of the Legislative Council.
The Speaker of the Legislative Assembly.
Members of the Legislative Assembly.
Foreign Consuls.
The Judge of the Sessions of the Peace.
The Recorder of the City.
The Rector and Professors of the Laval University.
Clergy of the different denominations.
The bar.
The medical profession.
The notarial profession.
The staff and officers of the volunteer militia.
His Worship the pro-Mayor and members and officers of the City Council.
The mayors and deputations from municipal Councils of other cities.
The president and members of the Harbor Commission.
The president and members of the Board of Trade.
The Press and the Superintendent of Public Instruction.
The members of the Civil Service.
The officers of the several Courts and the officers of the federal and local governments.
The rector and professors of Morrin College and High School.
The principal and professors of the Laval Normal School.
The students of Laval University.
The St. John the Baptist Society (of which the late Lieutenant Governor was one of the founders).
The other national societies according to seniority.
The Literary and Historical Society.
L'Institut Canadien.
The St. Patrick's Literary Institute.
The St. Patrick's Catholic and Literary Institute.
Choral societies.
Students of Morrin College and High School.
Students of the Laval Normal School.
Workingmen's Societies.
Citizens.

At about 25 minutes to 11 the funeral procession started, the hearse being accompanied on either side by a detachment from B Battery, numbering some 80 men in all, under the command of Major Montizambert, and followed by the procession as above given. Immediately behind the hearse walked Adolphe Caron, M. P., and his brother, Rev. Mr. Caron, Judge Taschereau and sons, and several relatives and connections of deceased. The pall-bearers were Sir Narcisse Belleau, Chief Justice Dorion, Judge A. Stewart and Hon. Premier DeBoucherville on one side, and Hon. Dr. Ross, Speaker of the Legislative Council, Hon. Louis Beaubien, Speaker of the Legislative Assembly, Hon. Hector Langevin, M. P., and H. J. Joly, M. P. P.

Immediately the procession started, minute guns were fired from the Citadel, and shortly after the bells of the Basilica rang out a funeral peal, which lasted till all were in the church. A number of buildings displayed signs of mourning, the more noticeable being at the residence of Hon. Mr. Langevin, which was festooned with black, looped with wreaths of *immortelles* ; the St. Louis Hotel, hung with black and white streamers; the office of the *Courrier du Canada*, also hung with black and white, and the store of Messrs. Renfrew & Co., which displayed similar signs of the mournful feeling which was generally felt, not only throughout the city, but in all the neighboring districts.

The band of the B Battery marched at the head of the procession, but the cold was too great to allow of their playing any funeral march. The procession wended its way down St. Louis street, round Place d'Armes, and by way of Buade and Fabrique streets to the Basilica, the flags of public buildings, not only those it passed, but throughout the city, being at half-mast. The route throughout was crowded with spectators, a large number of ladies being present, and all the shops in the streets through which the procession passed, both going to the Basilica and coming from it, were closed. Outside the front entrance an enormous crowd had assembled to watch the procession ; inside the number of people was also very large. Among those present were His Honor Luc Letellier de St. Just, Lt.-Governor of Quebec, and his aide-de-camp, Lieutenant Gautier, both of whom took part in the procession, as also did Judges Casault, Dorion, Maguire, McCord. Rev. Messrs. Housman, Rector of Quebec, Fothergill, Clark, Wright, Marsh, Powis and Langel, Mr Dunbar, Q. C., the batonnier, Col. Duchesnay, D. A. G. Col. Strange, R. A., Dr. Russell, President of the College of Physicians and Surgeons, the Mayor and four Aldermen and the City Clerk from Montreal, &c., &c., and in the procession was a large deputation from the St. Patrick's Society of St. Columba, the late Governor's parish ; also a number of Huron Indians, headed by their Chief, Paul Picard.

The decorations in the Basilica, showed to great advantage. All the celebrated painting were covered with black cloth. The organ loft was draped in black, and bore in white letters the motto, "*Pars mea Deus in æternum.*" The pulpit, hung with black, was ornamented with white maple leaves and large white and black rosettes. The high galleries were all hung with black, and the catafalque, one blaze of candles, supported beneath its crownshaped canopy the coffin containing all that was left of Lieut.-Governor Caron. On the lid of the coffin were a number of handsome floral wreaths, the cocked hat, sword and orders worn by the deceased. The grand *Requiem* Mass was celebrated by Archbishop Taschereau, with Vicar-General Langevin as assistant priest ; Rev. G. Drolet, of Sillery, as deacon ; Rev. A. Legare, Procurator of Quebec as sub-deacon ; and Rev. Messrs. Tetu and Leduc as assistant deacons. The *lever du corps* was solemnized by Mgr. Laflèche, assisted by Vicar General Poiré, Superior of St. Anne's

College, and the *Libera*, absolution and *Asperges me, Domine*, by the Archbishop. The service was a most solemn and impressive one, and the musical programme was faithfully fulfilled, the chorus numbering about 150 performers. The funeral oration was pronounced by Rev. Mr. Hamel, rector of Laval University, in the most eloquent language. He traced the career of deceased from boyhood till his end, pointing out in how many ways his life afforded an example worthy of emulation ; he dwelt with a lingering fondness on the character and capabilities of the late Governor, and concluded with a glowing eulogy to his virtues and life. All the Catholic bishops of the Province, viz : Mrgs. Fabre, of Montreal, Lafleche, of Three Rivers, Langevin, of Rimouski, Racine, of Sherbrooke, and Moreau, of St. Hyacinthe, were present, as also were a large number of priests of Quebec and surrounding parishes.

The following was the programme of music and choruses performed. The music was arranged by the Abbé Perrault of the Seminary of St. Sulpice, Montreal :—

Mass—De Profundis, Gregorian chant..........................Choir
Solo..Mr. L. Theureux
Funeral March, organ..Chopin
Mr. Gustave Gagnon.
Introit, Gregorian chant, Kyrie, Gregorian chant..............Choir
" Lacrymosa," (Quartette).....................................Mozart
Messrs. E. Dery, H. Bedard, A. and L. Leclerc, (St. Cecile Soc'ty).
Prone, " Dies Iræ," Gregorian chant............................Choir
Offertory, " Andante Funebre "................................Hartman
Band B Battery.
" Sanctus," Gregorian chant ; " Agnus Dei," Gregorian chant, ...Choir
Funeral March ....B Battery
' Libera," Gregorian chant.....................................Choir

The following the musical societies gave their services :—The pupils of the Seminary ; the Saint Cecile Society ; choir of the congregation (St. Rochs) ; choir of Saint Sauveur ; Musical Association of Quebec. Directors of choirs—Rev. G. Fraser ; Organist and Director General, M. Gustave Gagnon.

At the conclusion of the funeral services, the coffin was removed from the catafalque, and being carried out of the church, was again placed in the hearse, and the procession wound its way down Fabrique street, along St. John street to St. John Gate, where the various societies dispersed, and about 65 sleighs went out after the hearse to Belmont Cemetry, where the usual services over the grave being performed by Mgr. Cazeau, V. G., the body was placed in the Hamel vault, there to remain till the spring, when it will be buried in the plot of ground belonging to the Caron family, and a suitable monument erected.

The funeral was one of the largest ever seen in Quebec, and had it not been for the almost unparalleled weather, there is no doubt but the attendance would have been much larger.

University Intelligence.

The corporation of McGill University have pleasure in acknowledging, with thanks, the following donations to the College Library and Museum, during the quarter ending October 25th, 1876 :—

I.—TO THE LIBRARY.

From the Institution of Civil Engineers, London, Eng.—Minutes of Proceedings, vols. 43 to 45, 8 vo. From the Government of the Province of Quebec—Journals of the Legislative Assembly for 1875, vol. IX, 8 vo. From the Edinburgh University—Calendar for 1876-77, 8 vo. From the Government of the Dominion of Canada—Journals of the House of Commons, vol. X., 8 vo. Do. do—Sessional Papers, Nos. 1-7 to vol. IX., 7 vols., 8 vo. Do. do.—Statistics for 1876, 8 vo. Do. do.—Statistics for 1876, 8 vo. Do. do. Census of Canada for 1870-71, vol. IV., 8 vo. Do. do.—Journals of the Senate of Canada, Session 1876, 8 vo. From the United States Geographical Survey—Report for 1876, vols. 9 and 10, 8 vo. From the United States Geological and Geographical Survey—Report for 1874, 8 vo. From the United States Coast Survey—Report for 1873, 8 vo From Col. J. H. Baxter, M. D.—Medical Statistics of the Prevost-Marshal General's Bureau, Washington, 2 vols., 4 to. From Peter Redpath, Esq.—118 vols., being additions to and continuations of the Public Records in the " Peter Redpath Historical Collection," and books relating to American History and Archæology. From Messrs Holt & Co., Publishers, New York—Skinner's Principles of Approximate Computations, 12 mo. From A. Agassiz, Esq.—Annual Report of the Trustees of the Museum of Comparative Zoology, at Harvard College, pam., 8 vo. From the American Philosophical Society—Proceedings. January to June, 1876, No. 97 to vol. 16th, pam. 8 vo. From the Government of Washington—Bulletin of the United States Geological and Geographical Survey of the Territories, 2 pam., 8 vo. Do. do.—Bulletin of the United States National Museum, pam. 8 vo From the Smithsonian Institution—Woeikoff's Winds of the Globe, pam., 4 to.

II.—TO THE MUSEUM.

From T. J. Claxton, Esq.—Specimens of Wood and Bark of *Sequoia*. From John George, Esq, New Jersey—Specimens of Ores of Zinc and other Metals. From D. F. H. Wilkins, Ba. App. Sc.—Specimens of Fossils from the Upper Silurian of Ontario. J. W. Lowe, Esq., Clifton Quarry, New Brunswick—Specimens of Grindstone.

It was resolved that the special thanks of the corporation be given to Mr. P. Redpath for the very valuable addition now made to his previous donations to the library.

The Montreal School of Art and Design.

THE OPENING SESSION.

The inaugural proceedings of the Montreal School of Art and Design took place on the 2nd November, at its rooms, 58 Jacques Cartier Square.

Mr. S. C. Stevenson presided. He said that he exceedingly regretted the unavoidable absence of the President of the Council, Mr. Thos. White, Jr The object for which the school was established was for instruction in the elementary and advanced knowledge of art, and in the various practical forms to which it can be applied. The school had been doing good and useful work since 1870, and nine branch schools had been established in various parts of the province, all of which had made great progress. The results of the work in the various schools showed clearly that talent existed, and that in the proper application there was no reason why the work of some of our art pupils might not be placed in favorable comparison with that of similar schools in many of the largest cities of Europe and America. He stated that the Council of Arts and Manufacturers were most desirous of doing all in their power to give the very best Art education to our people. With this end in view they had looked very carefully into the various systems in vogue, and after much deliberation had decided on adopting that which has been so successfully carried out in the State of Massachusetts by Professor Walter Smith. The merit of this system lies in its practical usefulness so far as a progressive and thorough knowledge of all departments of Art is concerned. Also in the fact of a pupil not merely having to make a *copy* of a picture, but to possess a thorough knowledge of each and every part of the work. He felt

sure that the results in the Montreal school would attest the value of this system. He urged the pupils to be regular in their attendance and to comply with the rules laid down. Teachers, who were thoroughly qualified, had been engaged for the various classes, and it was of the utmost importance that they should follow their instructions. Owing to the liberality of the Local Government the classes were made entirely free to all those who chose to avail themselves of the advantages offered He intimated that all the drawings and work executed by the pupils of the modeling class would be retained until the close of the session. This was to be done with the view of making awards to the most deserving pupils, and also for the purpose of selecting the best specimens for exhibition at the Paris Exposition in 1878. The most meritorious works of art by pupils of other schools would also be preserved—not only for the sake of comparison—with a view to honorable emulation—but also with the object of forming a collection as the nucleus of a Canadian Art gallery for public exhibition. He remarked that, unfortunately, too much apathy had, hitherto, been shown in the matter of Art Education in leading educational institutions; but the opportunity was here presented for the acquisition of a sound training in free-hand, mechanical and architectural drawing, and also a knowledge of perspective, geometry and modeling from the best available studies including those of London, Paris and Boston. In England and in some of our cities of the United States the Art schools are attended by ladies, and it was to be hoped that our citizens would manifest sufficient interest in this important matter to enable us to establish Art Training Schools for ladies in Montreal. (Hear, hear.) In the City of Boston hundreds of ladies daily attend the course of instruction given under the direction of Professor Walter Smith. Instances of the beneficial results of their work were evidenced from the fact that that designs made in these schools by young ladies have been adopted by leading manufacturers, who have paid high prices for the right to produce them in their respective branches of industry. He hoped that the teaching of drawing on the most approved system would soon be made compulsory in all the schools of the Province, as is the case in many of the States of the neighboring Republic. This was the best and most thorough manner for developing a taste for Art among all classes. In conclusion, he thanked those present for their attendance, and hoped that this winter's classes would be successful and show the most gratifying results.

Over one hundred persons enrolled their names on the list of the various classes, and every evidence was given that the object of the school will be fully realized.

The best procurable elementary and advanced Art studies, comprising the antique, modern, landscape, ornamental, mechanical, and architectural drawings were on view, also some very fine plaster casts, among which an exquisite copy of "the Fawn," "the Apollo," "Venus de Milo," and others, were specially noticeable.

Short Sight in School Children.

(Summary of paper read before the Social Science Congress.)

Dr. J. A. Spalding, of Portland, Me., gives the result of a series of examinations of the sight of 2,372 primary and grammar school children in that city, with special reference to the amount of short sight. The percentage of short sight in the primary schools was found to be $3\frac{1}{2}$, while in the grammar schools it increased to 11.

In order to combat this increase of short sight, we should first of all consider the lighting of the schools. The model school should be built north and south, and should have windows only on one side. Another plan, and one almost as good, would be to have a large room with windows on both sides, and then have this room divided into four smaller rooms by glass partitions. In this way there would be one bright source of light and a subdued source, strong enough to light the further row of desks from the windows, and yet not strong enough to cast crossed shadows. If the light in a schoolroom comes in from both sides, care should be taken that the windows are large enough to throw sufficient light upon the middle row of desks. A schoolroom having light striking into the scholars' faces, and also coming in from the rear, needs only to be mentioned to be at once condemned.

As regards the teaching of music in the schools from printed charts, either these charts should be printed in various sizes of type, so as to be easily seen across the largest schoolrooms, or other charts should be hung up around the school, so that all the scholars could see.

Scholars who are short-sighted and who do not wear glasses, either from choice or because their parents refuse to let them, should not be forced to draw, simply because drawing is taught in the schools. The stooping position necessary in such cases, over desks too often nearly level, has a tendency to increase the defect of sight already present.

In every school the scholars who are short-sighted, or are suffering from other defects of sight, should be ranged along the windows when the light comes in from the side, or nearest the rear window where a school is so unfortunate as to have its light from front and rear, and that should be done irrespective of rank or age.

It would seem advisable to give glasses to short-sighted children, even at an early age, to help them see figures on the black-boards, or to draw from enlarged copies pinned against the wall, or to read from printed music-charts. Such glasses, if carefully chosen by competent persons, will prevent a rapid increase of short sight, and also rest the eye from too much exercise of its accommodation for near or distant objects.

But, after all, more care should be given to the teaching of the children at home as to how to use their gift of sight, the principal causes of weak sight being the reading or working at close work by poor light, or by flickering gas, or at too far a distance from a good light or in the twilight, or with the sun streaming over the page. Short sight being often hereditary, parents who have any such defect of sight, should be doubly careful in teaching their children how to use their sight, should not allow them much reading out of school, or by artificial light, and should take care if they give them glasses that they be not too strong, for a too strong glass has a tendency to increase the short sight, to weaken the accommodative power of the eye, and should be looked upon as worse than none. If short sight is to be successfully combated, the fight against it should be begun early in life, not only at home, but at the school.

MISCELLANY.

Use of stimulants by women.—Dr. Edmunds, in writing to the *Health Reformer* on the use of stimulants by women, says :—A very large majority of ladies of my own acquaintance on the other side, who are a fair sample of the ladies living in London society, have acquired the habit of using wine, table-beer, stout and frequently whiskey and brandy, to a large extent, I think, owing to the mistakes on the part of my own profession in the advice which they have given. The result is that the babies of the present generation are never sober from the earliest period of their existence until they have been weaned. This is a shocking statement for me to make, but I should not be doing my duty here, unless I were to make it as broadly and strongly as that. It is a simple fact. The mother's blood, practically, is entirely in common with that of the child. You know perfectly that, if a mother takes even an ordinary dose of such medicine as castor oil, it will very often affect the baby more than it affects the mother ; that one has to be exceedingly careful in prescribing for mothers simply on that ground. Now, what does that simple fact with which all you mothers are familiar show ? Why, it shows this that the soothed condition of the body after the mother has taken half a pint of beer is really the first stage of drunkenness in that child. When I hear a mother telling me that when ever she takes a little whiskey and water or brandy because the child is fractious, she finds that her milk agrees with it better, I am obliged to ask her if she knows what she is doing ; if she knows that she is simply making herself the medium for distilling into her babes system almost the whole of that spirit which she takes into her own ; and whether she is aware that that soothed condition of the child is really the first stage of drunkenness. The fact is, the baby is only the infinitely more sensitive extension of the mother's system ; and it is more likely than any other part of the mother's system to receive the things which are injurious that are taken through the medium of the mother's diet. Well, now, ladies, bear that in mind when you are told to take wine, or beer, or brandy ; understand that you are merely distilling that wine, spirit, and beer, into your child's frame, that the very mould which that child is to preserve for the rest of its life is being constructed out of blood that is alcoholized—out of a condition of the system in which intoxcation is the real, substantial element for the first twelve months of its growth. I ask those of you who may have thought it your duty to recommend young women who do not know better to take those things, whether that is not a grave and important fact for you to think of.

—To bleach leaves, mix one drachm chloride of lime with one pint of water, and add sufficient acetic acid to liberate the chlorine. Steep the leaves about ten minutes, and until they are whitened ; remove them on a piece of paper, and wash in clean water.

—Some interesting experiments on the localisation of arsenic in the tissues of poisoned animals are described by Mr. Scolosuboff in the *Bull. Soc. Chim.* It appears that dogs can absorb without danger, about sixteen times as much arsenic—in proportion to their weight—as would kill a human being. Mr. Scolosuboff's experiments also prove that arsenic first accumulates in the nervous system, and then passes to the liver and muscles.

—A large quantity of ice, apparently clear and transparent, is sold which does not come from unobjectionable sources, and which, when melted, fairly merits the designation of "dirty water." Some of this melted ice has been found to contain a considerable amount of sediment, apparently of vegetable matter. Those who use ice are recommended to test its purity by dissolving a small portion in a wine-glass, and, if the water is clear and bright, in all probability it will be fit for use, but, if otherwise, it should be rejected.

—The following are brief rules for prompt action in case of accident. For dust in the eyes, avoid rubbing ; dash cold water into them ; remove cinders, &c., with the round point of a lead-pencil or a camel-hair pencil moistened in the mouth. Remove insects from the ear by tepid water ; never put a hard instrument into the ear. If an artery is cut, compress it below. If choked, go upon all fours and cough. For slight burns, dip the part in cold water ; if the skin is destroyed, cover with whitening. For apoplexy raise the head and body. For fainting, lay the person flat.

Coloured Lights.—Experiments have been recently made at Trieste, says a contemporary, for the purpose of determining how far different coloured lights penetrate darkness. Six lanterns, with carefully-selected glass of different colours, and furnished with wicks and oils of good quality, were lighted on the beach, and observations were made by a party in a boat. At a distance of half a league the light-blue lantern was visible. At the same distance the dark-blue lantern was scarcely visible. The white lantern was seen at the greatest distance of them all. The red lantern was seen at the second and the green lantern at the third greatest distance. White, red, and green lights have the greatest power of penetrating darkness. Red and green lights are particularly recommended for ligthouses and for signals. Green light has one peculiarity—at a short distance it begins to look blue, aud often deceives persons. For this reason they who made the experiment suggest that, as a signal, a green light should never be used except in conjunction with read and white lights.

—Our readers may wish to close their centennial scrapbooks with these interesting facts concerning the success of the Exhibition. During the 147 days of its existence, the visitors numbered 8,019,214. At the Vienna Exhibition, although there were 186 exhibition days, including Sunday,—the days when the attendance reached its highest figures, there was a total attendance of only 3,492.622 paying visitors At the Paris Exhibition in 1867, the paying attendance,—including Sundays,—was 8,805,969 in 217 days. The paying attendance at the London Exhibition of 1851, which was kept open for 141 days, was 6,039,195 ; and at the London Exhibition of 1862 there were 6,211.103 visitors in 171 days. It will thus be seen that in respect to the numerical attendance the daily average of our Exhibition has largely exceeded that of its predecessors. At Philadelphia the receipts from admission fees alone, up to the last night, were approximately $3,816,000 ; at the London Exhibition in 1851, only $2,121,610 ; at Paris, in 1867, only $2,103,678 ; and at Vienna, in 1873, only $1,032,388. 25.

Useful receipts.—To clean straw hats, rub the soiled straw with a cut lemon and a little salt, and wash off the juice with water ; then sprinkle gnm water on them to stiffen, and dry in the sun.

—To clean glasses, bottles, and decanters brightly, break a few raw eggs in the article to be cleaned, with a little cold water—if greasy, warm—and a little soda ; shake well, rinse with plenty of water, and the obj ects will shine as nothing else will make them. It is a common practice in the South of France.

Tomatoes au Gratin.—Cut half a dozen tomatoes in halves, remove the pips, and fill the inside with a mixture of bread-crumbs, pepper, and salt, in due proportions ; place a small piece of butter on each half tomato, and lay them then close together in a well-buttered tin. Bake in a slow oven for about half an hour and serve. They may be eaten hot or cold.

—It has long been known that the polishing powder called "tripoli" consists of the remains of animalculæ, sometimes of marine and at other times of fresh-water origin. At Bilin, in Bohemia, there is a bed of this material eighteen feet thick. It is found largely in different parts of the world, and is now used for various purposes in the arts. Dynamite consists of this earth saturated with nitro-glycerine. Latterly it has been used as a fertiliser in agriculture.

Girls can learn to be Housekeepers.—Begin with your own things and your own place. That is what your mother will tell you if you rush to her, enthusiastic with great intentions, and offer to relieve her of half her housekeeping. Don't draw that little bucket of cold water to have it poured back upon your early zeal. Reform your upper bureau-drawer ; relieve your closet pegs of their accumulation of garments out ot use a month or two ago. Institute a clear and cheerful order in the midst of which you can daily move, and learn to keep it. Use yourself to the beautiful—which is the right—disposing of things as you handle them ; so that it will be a part of your toilet to dress your room and its arrangements while you dress yourself, leaving the draperies you take off as lightly and artistically hung or as delicately folded and placed as the skirts you loop carefully to wear, or the ribbon and lace you put with a soft neatness about your throat. Cherish your instincts of taste and fitness in every little thing that you have about you. Let it grow impossible to you to put down so much as a pin-box where it will disturb the orderly and pleasant grouping upon your dressing-table ; or to stick your pins in your cushion, even, at all sorts of tipsy and uncomfortable inclinations This will not make you "fussy"—it is the other thing that does that ; the not knowing, except by fidgety experiment, what is harmony and the intangible grace of relation. Once get your knowledge beyond study, and turn it into tact—which is literally having it at your fingers' ends, as I told you—and order will breathe about you, and grace evolve from commonest things and uses and belongings, wherever you may be ; and "putting things to rights" will not be separate taskwork and trouble any more than it is in the working of the solar system. It will go on all the time, and with a continual pleasure. Take upon yourself gradually—for the sake of getting them in hand in like manner, if for no other need—all the cares that belong to your own small territory of home. Get together things for use in these cases. Have your little wash cloths and your sponges for bits of cleaning ; your furniture brush and feather dusters, and your light little broom, and your whisk and pan ; your bottle of sweet oil and your spirits of turpentine, and piece of flannel to preserve the polish, or restore the gloss, where dark wood grows dim and gets spotted. Find out by your surely growing sense of thoroughness and niceness the best and readiest ways of keeping all fresh about you. Invent your own processes :

they will come to you. I shall not lay down rules or a system for you. When you have made yourself wholly mistress of what you can learn and do in your own apartment, so that it is easier and more natural for you to do it than to let it alone, so that you don't count the time it takes any more than that which you have to give to your own bathing and hair-dressing, then you have learned enough to keep a whole house, so far as the cleanly ordering is concerned.

— *St. Nicolas.*

Teach Children.—Teach them that a true lady may be found in calico quite as frequently as in velvet.

Teach them that a common school education, with common sense, is better than a college education without it.

Teach them that one good, honest trade, well mastered, is worth a dozen beggarly "professions."

Teach them that "honesty is the best policy,"—that 'tis better to be poor than to be rich on the profits of "crooked whiskey," &c., and point your precept by examples of those who are now suffering the torments of the doomed.

Teach them to respect their elders and themselves. Teach them that, as they expect to be men some day, they cannot too soon learn to protect the weak and helpless.

Teach them by your own example that smoking in moderation, though the least of the vices to which men are heirs, is disgusting to others and hurtful to themselves.

Teach them that to wear patched clothes is no disgrace, but to wear a "black eye" is.

Teach them that God is no respecter of sex, and that when He gave the seventh commandment, he meant it for them as well as for their sisters.

Teach them that by indulging their depraved appetites in the worst forms of dissipation they are not fitting themselves to become the husbands of pure girls.

Teach them that 'tis better to be an honest man seven days in the week, than to be a Christian (?) one day and a villain six days.

Teach them that "God helps those who help themselves."

Do all this, and you will have brought them up "in the way they should go."

The Blessing of Good Wives.—"No campanion so valuable and safe can a man have as a discreet and godly wife. It is her province and care to make her home neat and attractive in appearance, genial, sweet and healthy in atmosphere—the place to which her husband shall turn with glad and longing heart. It is her aim to be in person and manner so engaging, in spirits so fresh, in affection so genuine and true, in thought so elevated and pure, that he shall seek her companionship with never-failing zeal and joy. And it is by such companionship that a sweet and refined woman moulds and fashions her husband to a grace and worth to him attributable in no way. Her delicate sensibility seizes upon, and unconsciously elevates, his æsthetic nature. He grows up towards her standard of good taste. The gentleness of her spirit wooes the slumbering nobility of his nature to the forefront of life, and makes him great in the strength of manly tenderness. Her piety, more simple, trustful and steadfast than his, sweetly holds him to truth, to duty, and to God. Her grace of manner gently smooths away his masculine roughness and angularity. A most mighty wielder of the pruning knife is a judicious wife. One by one, the excentricities and rudenesses from the outer life, excrescences and vicious growths from the inner life, are cut away, until the man, in character and conduct, is rounded and complete.—(*The Monday Club.*)

Oil Yourself a Little.—There is a true humor in the following story: Once upon a time there lived an old gentleman in a large house. He had servants and everything he wanted, yet he was not happy, and when things did not go as he wished he was very cross. At last his servants left him. Quite out of temper he went to a neighbor with a story of his distresses. "It seems to me," said the neighbor, sagaciously, "'twould be well for you to oil yourself a little." "To oil myself?" "Yes, and I will explain. Some time ago one of the doors of my house creaked. Nobody, therefore, liked to go in or out by it. One day I oiled its hinges and it been constantly used by everybody ever since." "Then you think I am like the creaking door," cried the old gentleman. "How do you want me to oil myself?" "That's an easy matter," said the neighbor. "Go home and engage a servant and when he does right praise him. If, on the contrary, he does something amiss, do not be cross, oil your voice and words with the oil of love." The old gentleman went home and no harsh or ugly word was ever heard in his house afterwards. Every family should have a bottle of this precious oil, for every family is liable to have a creaking hinge in the shape of a fretful disposition, a cross temper, a harsh tone, or a fault finding spirit.

Winter Evenings.—What are you going to do with your evenings this fall and winter? There is a word of possibility in the good use of them; there is corresponding danger in the neglect of them. If you use your evenings for the next months, you will be worth more to your employer and find more joy in your work. Have you a taste for science, and would you like to know the reasons why certain things occur as they do? If you have an enquiring mind in this direction, then give yourself to the study of philosophy, Have you a taste for housekeeping or clerking? Then give your evenings to penmanship and the theory and practice of keeping books. Have you a desire to be a speaker? If so, devote your winter evenings to the study of the art of speech, you will be astonished at the gain you make. Have you a taste for drawing that has never been developed, and do you wish to train your hand and eye to be equalled to skilled workmanship? If so, devote yourself to that branch of the art for which you have a taste. Whatever you do, you need the skill to write a letter in a correct, easy, business-like style, and in order to do this you need to know the rules and use of language.

Weighing Light.—Prof. Crookes, of London, has actually succeeded in weighing the light of a candle, although light has hitherto been considered imponderable. The principle of his delicate and complicated instrument is based on the fact that a fine thread of glass, suspended at one end, may be turned round twenty or thirty times without breaking, and has a tendency to untwist itself. By fastening such a thread in a tube and throwing a ray of light on the interior, it has been found possible, with the aid of other scientific appliances, to register the revolutions and tensions caused by the introduction of the light of a candle into the tube, the result of which is that it weighs about 2,001,728, or nearly two thousandth part of a grain. Taking this as an approximate starting point, we find that the light thrown out by the sun on the earth is equal to about thirty-two grains per square foot, or fifty-seven tons to the square mile, or 3,000,000,000 tons on the whole earth, a force that, but for gravitation would drive our planet into space.

Fine words.—Mr. Samuel Weller, writing his famous valentine to Mary, housemaid, preferred "circumscribed" to "circumwented," as having a deeper meaning, while his unsentimental father conceded that it might be a "more tenderer word." Thackeray's Jeames is equally happy in his vocabulary. But while footmen's English is funny as footmen's property, it ceases to amuse when transferred to the parlour and the speech of the masters. It is three hundred years since Parson Harrison, in his introduction to Holinshed's *Chronicle*, lamented that "not a few do greatly seek to stain our language by fond affection of strange words, presuming that to be the best English which is most corrupted with external terms of eloquence and sound of many syllables." As spelling books have increased, and the dictionary has had free course and been glorified, this vice of fine diction has spread, till modern society, like Armado and Holofernes, seems to have been at a great feast of languages, and stolen the scraps. The habitual use of foreign words and phrases, when English will serve, is one of the vulgarisms of speech, which, as the *Autocrat* said, "blast the lineage of him who utters them for generations up and down." Certain concise expressions there are, chiefly of French birth, without equivalent in the vernacular, which we should be the poorer for giving up. But they are few, and, from much usage, they move so trippingly on the tongue as to conceal their foreign air. The rule should be to naturalise those useful aliens as fast as possible by dropping their accents. Beyond these, the modest talker cannot be too careful to decline the company of intrusive French forms. *Soirée dansante, matinée musicale*, and dozens more belong to this black list. Perhaps the excommunication should ban the whole array of foreign words and phrases in the dictionary. There are few of us so overflowing with ideas that the generous moulds of our native English are insufficient to contain them. The affectation of "external terms of eloquence and sound of many syllables" is only less objectionable. To say "recently deceased" for "lately dead," or "monumental marble" for "tombstone," or "residence" for "house," or "paraphernalia" for "clothes," or " or "emporium" for "shop," or "encomium" for "praise," or "location" for "place," or "locate" for "put," or "attire" for "clothe," or "individual" for "person," or "window draperies" for "curtains," or "entertainment" for "supper," or "sacred edifice" for "church," or "conflagration" for "fire," or "vociferation" for "cry," or "available resources" for "income," or "lower limb" for "leg," or peregrination" for "walk," is to throw a perfume of patchouli on the violet, to paint the rainbow with gamboge and ochre. The offence of the man who calls himself "The Skatorial Phenomenon" or "The Champion Velocipedist" differs only in degree, not in kind.

Goldsmith told Dr. Johnson that if he were to write a book about animals he would "make all the little fishes talk like whales." But even that lumbering giant could see the mote in his neighbour's eye notwithstanding the beam in his own, and complained that Robertson used "too many words, and these too big ones." Landor said that to talk well "We must keep our Greek and Latin out of sight. We may be sure those vegetables are the wholesomest and

most savoury which remind us least of the nutriment they have received." Coleridge thought it a kind of providence that the Bible was translated at about the time of the greatest strength of the language. So simple, indeed, is the diction of our English Scriptures, that to compare it with average newspaper writing, is like comparing an an antique marble Diana with a tobacconist's painted sqaw. And it is fair to cite the newspaper as an example of current speech, because it is the library of the multitude. Landor found the language, "varying every day under cooks, auctioneers, and compositors." Some journals, indeed, are models of vigorous and graceful writing. Too often, however, their writers come within the censure of old Wilson —"He that can catch an inkhorn term by the tail, him they count to be a fine editor." If this genteel pedantry were without remedy, it should be without regard. But good English can be made fashionable. When Thomson published his "Castle of Indolence" in 1748, he prefixed to the poem a list of obsolete words, whose meaning he kindly explained. Among these he reckons "carol," "flee," "nursling," "imp," "appeal," blazon," "sore," and several more, since declared to be in good and regular standing. There is much flotsam and jetsam from the Anglo-Saxon wreck still floating in the stream of time which we should find our account in saving. But, without this treasure, we are so rich as to be wasteful. A whole army of words, still sound and serviceable, seems to have been put upon the retired list through sheer whim and indifference. These could be ordered into active service at once, and a host of over-worked and weakly Latin, Greek, and French forms sent to succeed to their inglorious ease. English, with its genius for assimilation, and with half a world to grow in, is the richest of living tongues. We should be ashamed to cheapen it with tawdry ornaments. The simplest words that will convey our meaning are the best words, as the simplest manners are the most distinguished. John Knox reckoned it a great gain that he had "learned to call wickedness by its own terms—a fig a fig, and a spade a spade." And John Knox was a master of English.—*Pictorial World.*

The Sufferings of Childhood.—The sufferings of a bashful boy! Can any torture-chamber be more dreadful than the juvenile party, the drawing-room filled with critical elders, the necessary parade of the Christmas-dinner, to a shy boy? I have sometimes taken the hand of such a one, and have found it cold and clammy; desperate was the struggle of that young soul afraid of he knew not what, caught by the machinery of society, which mangled him at every point, crushed every nerve, and filled him with faintness and fear. How happy he might have been with that brood of young puppies in the barn, or the soft rabbits in their nest of hay! How grand he was paddling his poor leaky boat down the rapids, jumping into the river, and dragging it with his splendid strength over the rocks! Nature and he were friends; he was not afraid of her; she recognized her child and greeted him with smiles. The young animals loved him, and his dog looked up into his fair blue eyes, and recognized his king. But this creature must be tamed; he must be brought into prim parlors, and dine with propriety; he must dress himself in garments which scratch, and pull, and hurt him; boots must be put on his feet which pinch; he must clean—terrible injustice to a faun who loves to roll down hill, to grub for roots, to follow young squirrels to their lair, and to polish old guns rather than his manners!

And then the sensitive boy, who has a finer grain than the majority of his fellows, suddenly thrown into the pandemonium of a public school! Nails driven into the flesh could not inflict such pain as such a one suffers; and the scars remain. One gentleman told me, in mature life, that the loss of a toy stolen from him in childhood still rankled. How much of the infirmity of human character may be traced to the anger, the sense of wounded feeling, engendered by a wrong done in childhood when one is helpless to avenge!

All this may be called the necessary hardening process' but I do not believe in it. We have learned how to temper iron and still, but we have not learned how to treat children. Could it be made a money-making process, like the Bessemer, I believe one could learn how to temper the human character. Our instincts of intense love for our children are not enough; we should study it as a science. The human race is very busy; it must conquer the earth—perhaps it has not time to study Jim and Jack and Charley, and Tary and Emily and Jane, as problems. But, if it had, would it not perhaps pay? There would be fewer criminals.

Many observers recommend a wise neglect—not too much inquiry, but a judicious surrounding of the best influence; and then—let your young plant grow up. Yes; but it should be a very wise neglect which is always on the watch lest some insidious parasite, some unnoticed but some strong bias of character, take possession of the child and mould or ruin him. Of the ten boys running up yonder hill, five will be failures, two will be great, good, and distinguished. If such are the terrible statistics—and I am told that they are so—who is to blame? Certainly the parent or guardian or circumstance—and what is circumstance?—*Appleton's Journal.*

Livingstone's Researches.—It would be impossible to overstate the importance of Dr. Livingstone's researches and discoveries. By his own exertions, beset with perils and obstacles which would have driven back a man less courageous and determined, he has filled up a great space in the map of Africa; he was the first European whose eyes beheld vast inland seas whose existence had been vaguely conjectured from native reports; he laid down the course of hundreds of new rivers, and noted their volume and the velocity of their flow. Most important among the facts recorded in his journals is the discovery that Lake Nyassa belongs to a totally distinct system of waters from that which holds Lake Tanganyika and the rivers running north and west. With regard to the latter lake he leaves an interesting problem to be solved by future explorers. It may be taken for granted that he would hardly venture the surmise that Tanganyika may have a subterranean outlet without having duly weighed the probabilities in the scale with his elaborate observations. But whether this lake really pours its waters through the caverns of Western Kabogo into the vast rivers flowing northward is a problem which soon must be determined by actual exploration. Besides geographical information of importance, these journals contain innumerable notes on the habits of animals, birds, and fishes; on phenomena of every kind that came under the keen, searching eye of the great traveler as he moved through some of the grandest and most beautiful scenes in the world; descriptions of native life and habits; and sketches of personal adventure, told with the natural modesty of a great man, whose thoughts were more on his works than on himself.

Anti-Early Rising.—Farmers generally do not rise as early as they did twenty years ago, and I think they ought not to. Some, however, retain the old habit, and are up at three and four o'clock, having breakfast bylamplight, and then work commences. Now, I know well enough that if there are hired men, and if work pushes, it is necessary to stir early, but, on the whole, I think what is known as the habit of early rising is so much an error as to do more harm than good. I should say that for an ordinary household, where nobody but the family is in the house, breakfast at eight o'clock is soon enough for winter, and from six to seven o'clock for spring and summer. It would be a good plan though, if there is one in the house who likes to rise early, to build the fires that the rooms may be warmed, though by having good stoves fires can be kept all night. I object to breakfast by lamplight, because the children are made to get up when they would be much better off in bed and asleep. It is cruel to tear boys out of bed in the dark and cold, since they always go to bed tired, and growing as they are, they need all the rest and recuperation they can get; and when they do arise, they ought not to be hurried out to the barn, probably in cold, damp boots, to fodder and take care of stock. It is much better for the man himself to go out and see that work is properly done, and though the boys might go along, if they are warmed, and help and get fresh air before breakfast, I doubt whether anything is gained by feeding cattle before sunrise, and I am sure milking ought not to be done until the morning becomes a little cheerful. The amount of work which boys can do in a cold morning is not much, and it will seldom be done well. They are in a hurry to get back to the fire, and they ought not to be blamed, but it would be a good plan to have them help about breakfast, if their help is needed. The point I want to make is, boys are neither tough nor strong, nor have they the use of their muscles, so that they can apply to advantage what strength they do possess. If school hours press, and they are to go, they ought not to have any time to spare. When night comes everything should be made comfortable; have plenty of lamps, and have plenty of books and papers. An inteligent father neglects his duty if he does not help the teacher, and vast help can be given by hearing the children read, and in making them read correctly and in considering various subjects.—*Dr. Cross, in New-York Tribune.*

Rapidity and Superficiality.—Rapidity of locomotion, the chief physical feature of our time, betokens also its intellectual tendencies. Men read cursorily, and decide rapidly. The daily newspaper is making book study rarer than hitherto. It is felt in ten thousand instances to be distasteful or difficult. The subtle influence of the newspaper is telling on our thoughtfulness. We really seem to be approaching the fulfilment of Lamartine's predition: "Before this century shall have ran out, journalism will be the whole press, the whole of human thought. Thought will not have time to ripen—to accommodate itself inio the form of a book. The book will arrive too late; the ruling book, possibly soon, will be a news-paper."

—The *Borderer* condenses some interesting facts from the meteorological tables published in the report of the Marine and Fisheries Department:

As regards rain, St. John had much the most it measuring slightly over 52 inches during the year, and the greatest quantity, over 8 inches, fell in October. Bass River had only 26, Bathurst 27 and Chatham 31 inches. Charlottetown had something over 30 inches. St. John had 113, Halifax 87, Truro 126 and Charlottetown 132

inches of snow during the year. Quebec City surpassed the Dominion in having 182 inches—fifteen feet—of snow during the year. Halifax had 148 rainy days, Truro 129, Fredericton 112, Sydney 110, Chatham 103 and St. John 93. The places having the least rainy days were Port Hastings 55 and Bathurst 60. Charlottetown had 119 and Georgetown 112. The average in Quebec was 84 and in Ontario 86 days. Of the last five years, New Brunswick had the most rain in 1871 and the least in 1874. Nova Scotia had a great deal of rain in 1870, but of the last five years the greatest was in 1873 and the least in 1875.

The coldest place upon the habitable earth south of the North Pole appears to have been York Factory, N. W. Territory, where the thermometer went down to 49 5 in January and was 40 and 40 5 in November and December. This cheerful place is in lat. 57 N. lon. 93 W. and is 1756 feet above the sea, or over 1640 feet higher than the highest hill in St. John city. At Spence's Bridge, B. C., which experienced the highest temperature, 98 in the summer, it was as cold as 29 in January. In New Brunswick, Fredericton went as low as 30 6, in January. In the same month Chatham was as low as 23 5; Bass River 18 4; Bathurst 15; Dalhousie 13 5; and St. John only 10. In February and March, Bathurst excelled all other places for cold, being 28 and 22 against Fredericton's 27 8 and 12 6 Chatham's 26 6 and 16 Bass River's 19 and 15 6, Dalhousie's 14 and 5, and St. John had much the coldest days, the former showing 9 colder than Dalhousie.

In December the various places differed little from each other and averaged a little over 17 each. In Nova Scotia, Truro was the Champion, with 31 in January 29 in February, and 12 in December. Sydney Was next with 21 and 24. Baddeck's lowest was 15 in January Digby's was only 4, in December; Wolfville 9 in February; Halifax 14 and Windsor 10 in the same month.

The French Museum of National Antiquities.—All the French national museums are located in Paris, with the exception of the Museum of National Antiquities, which is at some distance from Paris, in a small town of the *banlieus*. Although the Chateau de St. Germain, which as been allotted to that interesting and really national collection, is a very picturesque monument, and the forest round a favorite pleasure ground for Parisian familles, the site allotted to the museum about ten years ago was not selected with the view of giving an additional attraction to the place. But the very idea of collecting relics of prehistoric ages in order to demonstrate that our ancestors lived in the age of so-called diluvian animals was opposed by a formidable number of influential people.

Napoleon III., personally a believer in the new theory, insisted upon the creation of the museum, but he assented to place it at St Germain, in order not to offend directly the prejudices of a formidable number of his supporters

The St. Germain chateau was elegantly built in brickwork by Francis I., the king chevalier, who dedicated it to his fair dame, Diane de Poitiers. It was within its walls that Louis XIV, wos born, and the government of the Mazarin was sitting in its elegant precincts when Paris was in the hands of the Fronde. Louis XIV, disregarded the building where his cradle had been surrounded with such dangers, and built Versailles with all its magnificence at a small distance of six miles. So St. Germain sank gradually from the dignity of the regal residence into the degrading condition of a prison for soldiers condemned to penal servitude by the Council of War of the First Military Division. The site was only famous as being the favorite spot where Alexander Dumas built his celebrated villa of Monte Cristo, and the first place connected by a railway with Paris, as early as 1837.

The opening of the new museum was the inauguration of a new era for the castle of St. Germain. Reparations and restorations were begun with activity, and are proceeding with such zeal that in the course of two years hence they will be completed. During the Franco-German war St. Germain was a stronghold of the German armies beseiging Paris, but the museum remained unmolested, having been taken by the Emperor William under his special protection, and M. Gabriel de Mortillet, the *conservateur*, who had remained at his post, took advantage of his influence to protect the inhabitants of the city with much energy.

His superior, the then Director of the Museum, is M. Alexandre Bertrand, a brother to M. Joseph Bertrand, the present Perpetual Secretary of the Academy of Sciences. The museum is now placed under the control of the historical commission for constructing the map of Gaul. This learned body is publishing a magnificent series of maps and engravings in order to illustrate the progress of the science of the prehistoric period, as well as of the Gallic, Roman, Gallo-Roman and Merovingian. They are also manufacturing in the establishment models of the objects exhibited which cannot be sold for money, but are sent by the government to the several provincial museums, or presented to learned men in consideration of objects given the museum, so that theymay be acquired by way of exchange. There is also in the establishment a special library in which have been collected by M. Gabriel de Mortillet all the books relating to prehistoric antiquities, and which is open free on certain days to the public. A carefully compiled catalogue has been prepared, and is to be published.

The establishment is in some respects connected with the Prehistoric Congress, M. Gabriel de Mortillet having originated the idea at La Spezzia, and M Alexandre Bertrand or he having been delegated by the government to all similar meetings which have taken place since that period. M. Alexandre Bertrand, was delegated to Stockholm las year.

The objects collected in the galleries are very numerous, arranged in excellent order and accompanied by inscriptions sufficient for the perfect unde standing of their historical bearings. A catalague has been issued, and is sold at a small price by the porters.

In the basement have been located casts from the Trojan column for showing the arms and manner of the Romans when practising warfare.

In the same part of the building are to be found the models of Roman arms which were tried in the Polygon of the forest before the members of the Congress of Geography.

These apparatus were constructed by a French officer in order to elucidate questions raised by the publication of "La Vie de Cesar," edited by Napoléon III, who had secured the collaboration of eminent members of the Academie des Sciences, Morales et Politiques. Two volumns of that altogether interesting and well-written book (although the theories of Cæsarism cannot be said to have borne the severe test of facts) have been published by M. Plon, the editor of his Imperial Majesty. The first sold immensely, as Napoleon was then at the zenith of his power, but the circulation of the seconde issued a few months before the Franco German war broke out, was very limited indeed – so limited that the editor prosecuted the Emperor to recover the money spent by him; but the petition was discharged, with costs.

It is for the publication of 'La Vie de Cesar' that the siege of Alesia, the crossing of the Rhine, &c.. have been expeditiously and carefully executed. The building of bridges over powerful streams, encampments established, assaults given, cities defended, all the warlike operations of the Romans, can be understood by a visit to the Museum of St. Germain. All this would have remained a mystery for thousands of visitors, as the museum is fast becoming a place of resort, if Napoleon III, had not felt it necessary to justify by historical arguments his theories on the advantages of the government of societies by men with a special destiny.

The large hall in the second floor may be said to be the most essential part of the museum. It contains the famous Moulin Guignon jaw and other human fossils discovered by Boucher de Perthes. In a glass case haxe been exposed seriatim the celebrated bones embellished by prehistoric artists with sculptures of the then living animals.

A magnificent bust of Boucher de Perthes, and another of Christy, the famous English banker and amateur geologist, have been erected side by side in a conspicuous place. It is a justice paid to their joint labors in the foundation of prehistoric science. It is due to the moral courage displayed when resisting the authorities of such men as Cuvier, Elie de Beaumont, Buckland, and a number of other official geologists, and to the ingenuity displayed in the demonstration of such important facts.

On the walls have been painted magnificent maps exhibiting the distribution of caves and places where stone and bronze implements have been discovered, and the limits of the several Gallic tribes in existence when Cesar invaded Gaul. A number of pictures *al fresco* are exhibited showing the several phases of prehistoric life principally in lake-dwellings.

o such institution is to be found in England, although cave-hunting is an important pursuit in the country of Lubbock, Lyell, Huxley, add Dawkins. A visit to St. Germain is a very useful way of spending a holiday, especially if the visitor has previously written a note to M. Gabriel de Mortillet, who is always ready to give kindly personal explanation to foreign visitors.—*Nature*

ABSTRACT FOR THE MONTH OF SEPTEMBER, 1876.

Of Tri-Hourly Meteorological Observations Taken at McGill College Observatory. Height Above Sea Level, 187 Feet.

Day.	Thermometer. Mean.	Thermometer. Max.	Thermometer. Min.	Thermometer. Range.	Barometer. Mean.	Barometer. Max.	Barometer. Min.	Barometer. Range.	†Mean Pressure of Vapour.	‡ Mean Relative Humidity.	Wind. General direction	Wind. Mean Velocity in M. p. hour.	Sky Clouded in Tenths. Mean.	Sky Clouded in Tenths. Max.	Sky Clouded in Tenths. Min.	Rain and Snow Melted.	Day.
1	73.23	81.7	66.5	15.2	29 7103	29.775	29.588	.187	.6533	81.1		9.3	8.6	10	7	0.93	1
2	61.31	68.0	53.8	14.2	29.7051	29.872	29.598	.274	.4079	74.9	N. W.	16.8	4.9	10	0	0 40	2
Sunday 3		71.7	50.3	21.4							W.	13.8					3 Sunday
4	59.61	68.2	53.8	14.4	29.8355	29.932	29.774	.158	3969	77.3	W.	10.7	6 3	10	0	0.24	4
5	53.19	59.4	47.7	11.7	29.7215	30.003	29.934	.069	·2881	71.3	N. W.	13.5	6.7	8	5	0.02	5
6	55.95	65.1	48.5	16.6	30.0375	30.066	30.000	.066	.3302	73.5	W.	7.9	3 9	9	0		6
7	57.53	64.5	49.0	15.5	30.0207	30 071	29.951	.150	.3496	73.6	E.	4.1	6.5	10	0	Inapp.	7
8	54.88	58.7	50.7	8.0	29.8246	29.915	29.748	.167	.4092	94.7		7.4	10.0	10	10	0 68	8
9	54.89	61.1	50.7	10.4	30.0552	30.125	29.924	,201	3468	81.0	N.	8.8	6.1	10	0		9
Sunday 10		66.2	48.7	17.5								4 0					10 Sunday
11	59.47	70.2	48.8	21.4	29.9347	30.035	29.843	.192	.3507	70.1	S. W.	7.7	4.1	9	1		11
12	56.22	64.8	49.0	15.8	30.0269	30.110	29.925	.185	.3226	70 9	N. W.	6.3	1.6	8	0		12
13	56.46	67.8	49.0	18.8	30.1905	30.220	30.161	.059	.3255	72.5	E.	3.9	3.5	7	0		13
14	56.56	62.8	47.5	15.3	29.9975	30.149	29.786	.363	.3927	85.2	S. E.	8.3	8.1	10	0	0.10	14
15	58.92	62.8	52.4	10.4	29.8765	30 137	29.743	.394	.4061	80.9	W.	9.8	5 6	10	0	0.12	15
16	49.40	55.3	42.8	12.5	30.3676	30.426	30.205	.221	.2335	66.5	E.	6.0	1.7	10	0		16
Sunday 17		60.6	43.9	16.7							N. E.	6.7				Inapp.	17 Sunday
18	55.00	59.8	49.9	9.9	29.8764	30.044	29.742	.302	.3952	90.8	N. E.	12.9	9.6	10	8	0.35	18
19	51.90	54.3	50.5	3.8	29 7735	29.854	29.721	.133	.3661	94.3	N. E.	15.5	10.0	10	10	0 64	19
20	54.25	57.0	51.8	5.2	29.990	30.103	29.866	.237	.3775	89.6	N. E.	10 9	10.0	10	10	0.02	20
21	55.10	60.2	49.7	10.5	30.2069	30.241	30.131	.110	.3768	86.7	N. E.	7.2	8.9	10	4		21
22	57.15	61.2	54.2	7.0	30.2296	30.278	39.168	.110	.4222	90.1	N. E.	3.3	9 0	10	2		22
23	59.47	67,0	54.0	13.0	30.0721	30.138	30.014	.124	.4212	83.9	E.	1.2	6.1	10	2		23
Sunday 24		67.0	53.6	13.4							N. E.	5.1					24 Sunday
25	60.45	68.5	54.8	13.7	29.9466	30.022	29.810	.212	.4[illegible]48	77.1		5.1	8.3	10	4		25
26	55.70	60.9	51.1	9.8	29.6081	29.762	29.535	.227	.4050	91.2	S.	11.7	9.9	10	9	1,69	26
27	47.32	51.3	41.3	10.0	29.5079	29.590	29.453	.137	.2840	85.6	S. W.	14 6	9.9	10	9	0.03	27
28	50.19	60 3	40.5	19.8	29.8070	29.871	29 630	.241	.2695	74.7	S. W.	16 9	7.1	10	1	0.03	28
29	51.50	54.0	46.7	7.3	29.8095	29.842	29.758	.084	.3416	89.5	S. W.	1 .2	8.1	10	2	0.26	29
30	49.45	56.0	44.9	11.1	29.8526	29.876	29.835	.041	.2039	83.7	S. W.	9.6	5.2	10	0		30
																	31
Means	55.965	62.88	49.87	13.01	29.9224			.1786	.36835	81.18		9.05					

Barometer readings reduced to sea-level and temperature of 32° Fahr. † Pressure of vapor in inches mercury. † Humidity relative saturation, 100. Observed. Ten inches of snow is taken as esqual to one inch of water.

Mean temperature of month, 55.965. Mean of mean max. and min. temperature, 56.38. Greatest heat was 81.7 on the 1st; greatest cold was 40 5 on the 28th,—giving a range of temperature for the month of 41.2 degrees. Greatest range of the thermometer in one day was 21.4, on the 11th; least range was 3.8 degrees on the 19th. Mean range for the month was 13.01 degrees. Mean height of the barometer was 29.9224. Highest reading was 30.426 on the 16th; lowest reading was 29.453, on the 27th—giving a range of 0.973 inches. Mean elastic force of vapor in the atmosphere was equal to .3683 inches of mercury. Mean relative humidity was 81.18. Maximum relative humidity was 99 on the 8th. Minimum relative humidity was 50, on the 13th. Mean velocity of the wind was 9.0 miles per hour; Greatest mileage in one hour was 25, on the 2nd. Mean direction of the wind, N. Mean of sky clouded was 69 per cent.

Rain fell on 16 days. Total rainfall, 5,51 inches.

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